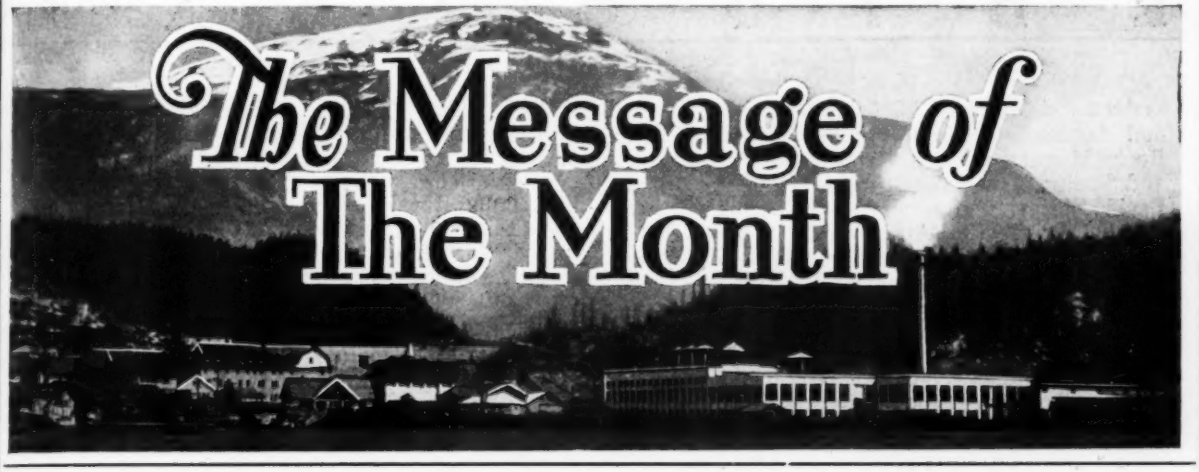

The Timber-Using Industries Need a Guardian

SOMETHING definite must be done soon to conserve the appalling consumption, destruction and waste of the forests of the United States and Canada.

The wood-working industries, conspicuously pulp, paper and lumber, have demonstrated their impotence to stop the unparalled depletion of our wood supplies and reserves.

In spite of the alleged assertions made during the past twenty-five years that there was wood in perpetuity to supply the consumption and demand in the North American continent, the facts show startling conclusions to the contrary.

In an article appearing in the Montreal Star under the date of September 2nd under the caption of "Depletion of our Forests," Mr. Frank J. D. Barnjum, an eminent authority on timber supplies in Canada, states that the total amount of wood cut annually for usable purposes from Canadian forests is 21,700,000 cords. He then goes on to show that for every cord of wood cut from the Canadian forests for usable purposes, four and one-half cords are destroyed annually by insects, fungi and fires and these figures are based on conservative government figures. In other words, if we add to the destruction of timber in Canada, the amount cut for usable purposes, it amounts to 121,000,000 cords, or 15,488,000,000 cubic feet. Then, by taking the government figures for the amount of remaining timber stand and dividing that figure by the amount of this annual depletion, it shows that there is in Canada less than a ten year supply remaining. He goes on to state "when this situation becomes generally known and its significance is fully realized, and all the new paper machines come into operation that are clamoring for wood, we are due to see the biggest advance in pulp wood values that this continent has ever experienced."

So much for Canada.

In the United States according to Mr. Harper Leech writing in The Chicago Tribune on the 28th of September, we learn that the annual consumption and wastage of timber is 25,000,000,000 cubic feet. The government forestry experts claim that we have 81,000,000 acres of denuded lands that are not restocking with timber and 264,000,000 acres of growing timber, with an average increment of 24 cubic feet of wood per year. Of this 264,000,000 acres, only 138,000,000 acres is virgin timber. Therefore, on the basis of our present consumption and wastage, the United States has less than seven years supply of wood remaining.

Now these are the best figures that we can obtain at the present time, and if true, they bring us face to face with a startling situation.

For years we have observed with alarm the tremendous damage done by fire to our forest area in the United States. Last year, according to the Forest Service, United States Department of Agriculture, 24,300,000 acres of land were burned over as a result of 91,793 fires. The greatest areas burned over and the greatest damage done, as well as the largest number of fires, were in the south-

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eastern states where 18,000,000 acres were affected and damage done totaling $11,000,000. In the Rocky Mountain States, 735,000 acres were burned and damage done amounting to $5,000,000. In the Pacific States, the figures were 1,746,000 acres and $3,300,000; in the Appalachian States 503,000 acres and $2,400,000; in the West Mississippi group, 1,900,000 acres and $1,600,000; and in the Northeastern States, 211,000 acres and $1,900,000.

Strange as it may seem, the lumber interests, the paper interests and the public have seemingly fixed their minds solely on the amount of timber cut for use and are totally ignorant of the fact that the wastage by fires, insects, fungi and wind and over-production is mounting up to a ratio of five cords of wood wasted to one cord used in the United States and Canada.

Unless immediate measures are taken to check this appalling depletion, the extinction of wood supplies on this continent will come to pass in this generation of citizens.

Already the question is being asked by observing men—from whence will come the raw material to provide for the enormous growing consumption and demand for paper?

In our judgment, the wood-working industries of the United States need a guardian. Who shall the guardian be and what form shall the guardianship take?

Nobody but the Government acting in the interests of the public can provide the means for adequate protection to save our remaining forests.

Nobody but the Government backed by the public can put into force that system of license by which the unconscionable cutting of standing timber can be regulated to the legitimate consumption.

The paper and lumber industries are flat on their backs due to continual over-production of paper and lumber.

On the basis of the facts set out above, how in heavens' name can any justification of the continual, and wilful exploitation of our forest areas be permitted?

We say again, the wood-working industries need a guardian against the natural foes and the careless enemies which bid fair to extinguish these basic commodities.

Relations of Chemistry to Papermaking

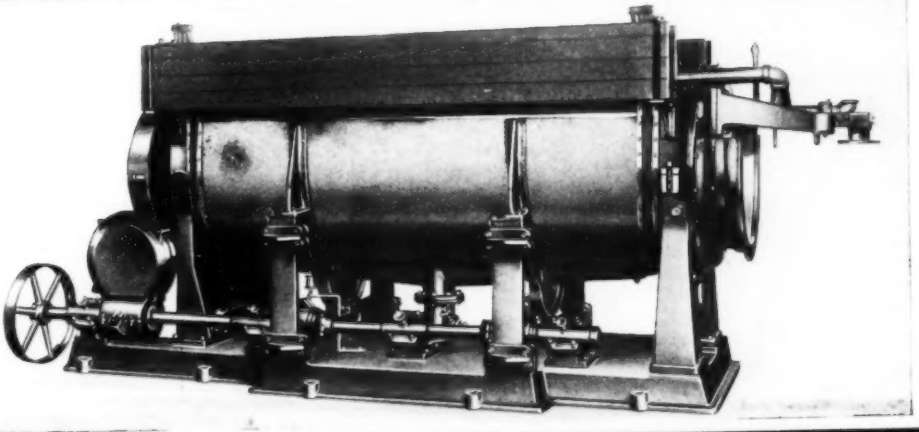
IT IS principally on the heavy chemical side that the pulp and paper industry touches chemistry, though many fine chemicals are used in the research and control laboratories of mills in the work of testing materials and developing new lines of research. However, with each new Chemical Industries Exposition an increasing interest in the exhibits is noted on the part of paper mill engineers and chemists. They are attracted to it not so much by the exhibits of chemical products as by the machinery and apparatus used in manufacturing operations and by instruments used in recording temperatures, steam, gas, or electricity flow, and similar contrivances.

Chemistry found no application in papermaking until the process of cooking wood with a solution of caustic soda was invented by Burgess and Watt in 1852. Prior to that time papermaking was purely a mechanical art, the cooking of rags with lime or soda being merely a detergent process for the removal of natural waxes, oils, grease and dirt, though some loosening or disintegration of fibers was also brought about. It is in the chemical treatment of wood for the isolation of fibers that chemistry is chiefly employed and which affords the principal channel of consumption for the heavy chemicals that form an important item of expenditure in manufacturing operations.

To persons unacquainted with the many diverse operations involved in pulp and paper manufacture, some of the heavy chemicals enumerated in statistical statements as among materials consumed by the pulp and paper industry must appear strange until it is known that they are used in operations not directly connected with pulp manufacture. Thus, in a recent list of chemical commodities consumed in paper mills, as published by an engineering contemporary, the paper industry is credited with a sulphuric acid consumption of 500 tons. To tell where all this sulphuric acid goes might tax even the knowledge of a practical papermaker. A considerable quantity, to be sure, is drawn upon in the cleansing of fourdrinier wires, but not enough to account for 500 tons, and there is no papermaking operation in which sulphuric acid is used, unless some mills still employ it as a substitute for alum in sizing as was the case in the days of the Great War. This is an extremely unlikely outlet for the acid, and we suppose that the consumption noted must be credited to the use of the acid as a source of hydrogen gas for the production of an oxyhydrogen flame used in the burning of lead for the construction of lead-lined tanks where sulphite liquor and similar solutions that attack wood may be stored. The acid is of course mixed with zinc filings to produce the hydrogen gas. Large quantities of sulphuric acid are of course accounted for in the manufacture of parchmentized paper.

The chief consumption of chemicals in the paper industry is connected with the preparation of cooking liquors; hence lime, sulphur, soda ash, sulphate of soda and salt, and of late years liquefied chlorine, bulk large among the chemicals consumed in pulp mill work, while in purely papermaking operations there is a notable consumption of alum as well as of silicate of soda. In fact after lime, with an estimated consumption of 330,000 tons, sulphur with 260,000 tons, and sulphate of soda with 103,000 tons, alum comes next with 100,000 tons, soda ash

a better
BIRD SCREEN



Twenty odd thousand tons of paper pass through Bird Screens daily

BIRD MACHINE COMPANY
South Walpole - Massachusetts

BIRD

1303

EDITORIAL

75,000 tons, followed by silicate of soda 10,000 tons and caustic soda 9,000 tons. The actual consumption of caustic soda is of course much heavier than the amount recorded, seeing that many mills manufacture their own caustic, though more than 85 per cent of the soda originally used in making up the cooking liquor in a soda pulp mill is regenerated. Large quantities of chlorine concentrated to liquid form and in combination are produced in pulp and paper mills by the elctrolytic process which accounts for the heavy consumption of salt. It is well known that a surplus quantity of caustic soda and chlorine is manufactured in some mills, depending on the electrolytic process employed, and these mills are heavy dealers in by-product chemicals of this kind.

In view of the foregoing, it is easy to see how difficult it is for statisticians not directly connected witih the industry to form an accurate estimate of chemicals consumed. The modern development of continuous causticizing processes and recovery systems add to the difficulty, but a fair approximation may be made with calculations based on the total quantities of pulp and paper made in mills throughout the country. It is known, for example, that in the production of sulphite pulp, sulphur is drawn upon to the amount of 12 per cent for each ton of pulp made, and that 2 per cent of alum is consumed roughly for every ton of paper produced, but it is not easy to tell definitely the history of other chemicals employed in pulp and paper manufacture where their actual relation to a given product is concerned.

As may be understood from what has been said, the pulp and paper industry is both a producer and consumer of chemicals, and it is difficult to obtain exact figures on the quantities used in some operations. Thus, in estimating the consumption of such an article as silicate of soda, allowance must be made for its use as an adhesive in the fiber board and paper box industries, as well as for its use in the sizing of paper and as an adhesive agent in work around the finishing rooms of paper mills.

Bleaching powder was formerly an article of considerable request in pulp and paper mills but there has been a notable decline in the consumption of this article within a comparatively recent period as a consequence of improvements in machinery and processes which have made for an increased demand for liquefied chlorine in the bleaching of pulp and paper. Nothing has been said here of the aniline dyestuffs and similar coal tar products which find use in the paper industry, but they also find numerous uses in paper maufacture as every papermaker knows.

New French Tariff Duties

THE newly announced French customs law established in connection with the recent Franco-German treaty imposing on certain lines of American goods duties four times as high as those applying to competing products from Germany, England and other countries, and on machine made papers, parchment and fancy papers new minimum or intermediate duties, whichever is the higher, has caused the United States to make representations to France suggesting the suspension of any higher duties on American than on German or other goods pending the negotiations of a commercial treaty between the United States and France.

The European office of the Import Committee of the American Paper Industry reports it is impossible to foretell the results or effect of the controversy, as all depends on further concessions by France. If no concessions are made, German competition in France with American paper will be made easier, or an increased demand may increase French prices. This would mean a higher dutiable value on French paper shipped to the United States, the home market price being the basis upon which American duties are computed.

American paper exports to France will be far less affected by the new French tariff than imports from France into this country. Imports of paper of all kinds from France reached a value of over $5,000,000 in 1925, more than $4,000,000 in 1926, and in the first half of the current year, France shipped over $2,000,000 worth of cigarette paper into this country. Writing paper imports have also been heavy.

Under the American tariff laws, the President has the right to increase any existing duties 50 per cent, to increase the duties to a rate equivalent to that charged upon American goods, or to impose an embargo denying entry into the United States of any such goods. Pending interchanges with France in an effort to secure the same treatment for American goods that is given German merchandise, no announcement has been made which if any of these courses will be followed.

If France maintains its present position, it is fair to assume that the United States will not fail to take some definite protective action. Any of the possible steps outlined above would practically stop imports of paper of all kinds from France, as the existing United States tariff was intended merely to equalize the cost of production between American and foreign countries, and to give American mills an equal opportunity with foreigners in the domestic market. If because of French tariff increases, higher duties are imposed here, the French manufacturer probably will be unable to compete in our markets.

It is hoped that actual retaliation by the United States will become unnecessary, since a tariff war would be unfortunate for all international relations and would hurt European nations perhaps more than the United States. The prospect that the United States could win an open fight in this situation, should contribute largely to an adjustment.

THE PAPER INDUSTRY

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Vol. 9 OCTOBER, 1927 No. 7

Lessons in Paper Making

Lesson XV—Building the Reel

By HARRY WILLIAMSON

Class Instructor, Champion Fibre Co., Canton, N. C.

This article is the fifteenth of a series of lessons in practical paper making, appearing each month in The Paper Industry by arrangement with the Champion Fibre Company, Canton, N. C. These lessons are a part of the general education course conducted by this company under the direction of Mr. J. Norman Spawn, educational director.

BUILDING the reel—without exception the most important of the back tender's duties. Second in command on the good ship "The Paper Machine," the multifarious duties of the back tender culminate in this one factor:

> To produce successive reels of paper which will run over the winder with the **least possible waste** resulting in the maximum amount of shipping paper with the lowest handling cost.

Culls, rewound paper, extra sorting, job lots—until the selling price is actually lower than what the paper costs to make and handle it. Not all of it is traceable to the back tender, but in the hundreds of times per day, Mr. Back Tender must walk around the calender stack; in the hundreds of times per day, his finger tips feel the surface of the paper; his eyes and trained fingers can find the defects coming from the wet end. Prompt information **to** the machine tender **and** prompt action **by** the machine tender will save much broke.

One hesitates to use that much abused word co-operation, especially in connection with papermaking, yet the successful and economical operation of a paper machine can only be achieved by the closest, amicable co-operation between the machine tender and his back tender.

Mr. Machine Tender, the back tender is an extra pair of eyes for you. Cultivate them.

Mr. Back Tender, you **can** learn to **run the machine** from the dry end. Knowing **what** to look for and **how** to recognize it when you see it will make you familiar with every operating defect which may occur in your paper.

When you are promoted to be machine tender, you will find your already trained eyes are more than half the battle. Paper handling, paper drying, reel building, general supervision over the winder crew, is a broad summary of the back tender's duties. Adding the duty of information clerk to the machine tender to this list presents quite an imposing array. But wait a minute, Buddy. Don't rush off to the boss, demanding a raise in pay on the strength of this list. Notify the machine tender of defects promptly and there will be **less** breaks to pull over the machine, **less** disturbance of the calender stack with which you build your reel.

Dry the paper **right**, never letting the steam go to either extreme and there will be **less** change in the temperature of the calender rolls, and the reel will be more easily kept under control. Keep the reel under control by the various means at your disposal and **there will be very little supervision of the winding operation required from you.** In this art of building a reel, a back tender ought to be just the least bit pessimistic—hope for the best, but don't expect it **without effort.**

Interpretive reading of the reel, **anticipation** of effect, and constant delicate adjustment gets far better results in reel building than the work of the optimistic individual who makes a radical change in his calender stack and then thinks he can safely leave it alone for half an hour.

Many executives have a "thought for the day"

motto on their desks. The back tender can have this one and use it every day:

> **No calender stack is perfect. No continuous web of paper is consistently uniform over any given machine area when it reaches the dry end.**

Therefore, the skill of the back tender is required.

Of course even the best back tender can not build a perfect reel out of a lop-sided web of paper, neither can he apply steam to any given area in the **width** of the dryers.

Heat and shrinkage play a very important part in reel building; therefore, an **even water content across the width of the paper web when it enters the dryers** is the ideal condition for the machine tender to aim at. The larger mechanical features necessary to attain this ideal, such as the crowning of the press rolls, density of rubber, upkeep of suction box covers, etc., are usually well taken care of. It is the smaller recurring features which give the most trouble.

Water in the paper web is **indicative of length.** The **removal** of water by pressure at the first and second presses, and in a lesser degree at the third press, will **compact** and **shorten** the length of the paper web. The pressure will at the same time **reduce the bulk of the web.**

Pressure applied by the fourth press **does not remove water.** The action of this press is to **smooth** and further **compact** the paper web. On heavy basis weights, therefore, pressure applied by the fourth press will actually **increase the length** of the web of paper, by spreading the bulk over a greater area lengthwise with the machine, that is, in the **direction of the rotation of the press rolls.**

When the paper reaches the dry end of the machine, it is **air dry** and pressure applied by the calender rolls **reduces bulk and increases length.** We therefore have the following guiding rules:

1—Pressure which **removes water** more than it reduces bulk will **shorten the paper web.**

2—Pressure which **reduces bulk** and **does not remove water will lengthen the paper web.**

A soft spot in a reel is an area of paper **longer** and **thinner** than the web on either side of it. **A hard spot** in a reel is an area of paper **shorter and thicker** than the web on either side of it.

Assuming a sheet of **even formation** delivered from the wire to the presses, the operation of the wet felts and the adjustment of the leverage weights are the next greatest factors in reel building from the wet end. A sharply crooked seam over a small local area in a press felt means the mesh of the felt is **closed** at that point and the **water can not be pressed out. The bulk of the paper web however will be slightly reduced.**

The paper will therefore be **longer** and **thinner** over this area and will show a **soft spot** on the reel. These factors are more apparent when applied to the first and second presses where the water removal is greatest. The heavier the felt used on the third

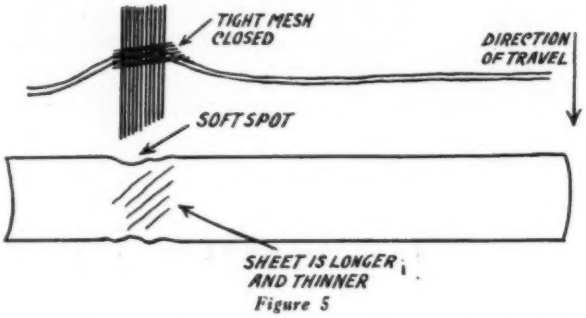


Figure 5

press, that is, the more the third press is used to remove wire and felt impression rather than water removal, the **less** apparent is "the water equals length" factor—the greater control begins to lay with the **bulk factor.**

In this instance, assuming the reel to be running soft on the front edge, and it is not desired to make further adjustment of the calender stack, **easing** the weight on the front side of the third press will give a greater **gain in bulk** which will more than offset the increased length due to increased water content. Therefore, the front edge of the reel will become harder with less finish.

The most outstanding example of the vagaries of uneven water content in the paper web is to be seen in the much discussed "Cockling." Cockling may perhaps be better defined as **uneven shrinking of the paper web over small local areas immediately adjacent to each other.**

The presses receive a lot of blame for cockling; the dryers receive much more. It is a little illogical to blame either if we are making a sheet at 500′ per minute **without cockling,** and we suddenly attempt to make the **same sheet** at a speed of 600′ per minute and **get cockling.**

The crown, leverage weights and felts of the presses are the same. The temperature of the dryers is a little higher, and **the fibers in suspension on the wire are passing the vital shake area and sinking from suspension much more quickly.** Consequently, the **formation or even distribution of fibers and resultant even distribution of moisture content is not the same.**

The higher temperature of the dryers will shrink the freer sheet more quickly, but this would only be detrimental to strength and would not **cause** cockling if **the shrinkage were even.**

On the other hand, when making high test papers at a high speed, such as the light weight krafts, cockling can be caused by excess hydration. Stock for such a sheet is sometimes overhydrated merely

as an aid to water retension during formation on the wire simply because the volume of water necessary to meet the very high speed on a light basis weight would be very difficult to control. This kind of mixed volume in turn necessitates the use of a very low slice and a high head. Consequently, the mixed volume delivered to the wire has a **high horizontal speed** and a **low lateral dispersion,** and again we have **uneven moisture content** over small local areas impossible to combat with a press crown **evenly** from the center to the edges.

Cockling is **caused** on the wire, **developed** on the presses and dryers, and shows **the result** on the calender stack. There are many remedies for this evil. Increasing crown is one; stretching the life out of the dryer felts to make them hug the paper closer to the dryers is another. In most cases, it will be found that the machine is simply trying to make paper **out of its range** and a more even distribution on the wire will effect a cure.

The Calender Stack

The calendar stack is the last deciding factor in reel building and one which demands the best skill and attention of the back tender. The pre-eminent requirement of a calender roll is that it shall have a chilled, extremely hard surface, free from grain or blemish. The number and diameter of the rolls varies according to the size of the machine and the quality of the paper to be made. Small stacks or large stacks, **the principles of operation are the same.** Every roll is carefully ground and polished. The bottom roll, about 24 inches in diameter, is the driver, and every roll is driven by frictional contact one with the other. The second roll is not so large as the bottom roll but is usually slightly larger than the top roll. The top roll in turn is larger than all the intermediate rolls. While we have the same speed in linear feet per minute, the top roll makes **less** revolutions per minute than the intermediate rolls and slightly more r. p. m. than the second roll.

The bottom roll is ground with the a crown, that is, the diameter in the center is greater than that at the ends. This is done so that when it is supporting the whole weight of the other calender rolls, besides the weight transmitted by the compound leverage applied, the top surface of the bottom roll will still form a **true straight line contact** with the bottom surface of the second roll. All the intermediate rolls are usually ground straight, except on machines which are intended to make very heavy basis weights. Then, a little crown is also ground on these rolls to allow for the extra leverage weight used. As any leverage weight applied to the stack is transmitted through the top roll, this roll is always given a little crown, enough to offset the spring of the journals under the levers.

The amount of crown ground in the bottom and top rolls varies as to the total weight of the stack and is usually between 11/1000 and 20/1000 for the bottom roll and 4/1000 to 8/1000 for the top roll.

The modern calender roll bearings are fitted with oil rings and the lubrication is by an automatic drip feed. The oil drips from a reservoir at the top of the stack and feeding each bearing on the way down, passes through a filter and is then pumped back again into the reservoir. The bearings are also fitted with water jackets through which a fresh stream of water is kept running. Brass friction rings take care of the endwise thrust or crowding which occurs when the stack is running without paper on it. The driving of the heavy metal calender rolls by frictional contact must inevitably generate heat. More heat is transmitted **to** the rolls **from** the paper itself. Heat is at once the friend and the enemy of the back tender. **Kept in control,** it is a useful tool. **Running wild,** it is a destructive enemy. The heat **expands** the metal calender rolls, making them larger in diameter. The paper passes **between** each pair of rolls, the number decided by the final caliper and finish desired. If this expansion of the rolls by heat were **even** across the whole width, the **effect** on the paper would be even.

We know, however, that the heat transmitted **from** the paper to the rolls **is not consistently even,** caused by the fluctuating conditions at the wet end. We also know that heat generated by the frictional driving contact of heavy metal rolls must of necessity be uneven. Besides the problem of uneven expansion of the rolls, we have also the problem of slight inequalities in the **bulk** or thickness across the web of the sheet to combat. In the solution of our calender problems in relation to building a reel, we **use** our friend the enemy, **heat,** and his opposite, **cold air.**

There is installed behind the stack a cold air system with pipes adjustable vertically and laterally so that we are able to direct a blast of cold air on any part of each of the six bottom rolls.

Building the Reel

Pressure on the rolls, expansion and contraction **of** the rolls are our tools. **Expansion** is equal to **increased pressure** caused by the increased diameter of the roll. **Contraction** is equal to **decreased** pressure caused by the **lesser** diameter of the roll. By the use of air and heat, we are, therefore, enabled to create **small local areas of crown** across the width of the calenders.

We have two methods of applying pressure **on** the rolls. First, by means of the compound levers and weights. Second, by the use of the "dead" roll, or rolls not in use. Wooden blocks can be inserted between the housings of the "dead" roll and the top revolving roll on either side.

The weight permitted to apply is regulated by use of the lifting arms of the threaded lift equipment,

adjusting the arms under the outside ends of the "dead" roll journals. Whether the pressure is applied by levers or "dead" rolls, care must be taken to offset the **mechanical crown** as nearly equal on each side of center as possible.

A slightly greater weight applied on one side or the other to get the desired results in finish or bulk of the paper is skillful back tending. To deliberately apply a weight sufficient to tilt the roll so that its weight is applied from the crowned center to one side only, will cause end thrust and crowding of the rolls **away from the pressure,** and if persisted in, will eventually ruin the friction rings and bearings.

In our next lesson we will deal with expansion and contraction of the rolls, finish, caliper, general care and upkeep of the stack.

Pointers for the Engineer

By W. F. SCHAPHORST, M. E.

Soot Cleaning Data

BELOW are some valuable figures that were collected by the Prime Movers Committee of the National Electric Light Association on the amount of steam used for soot cleaning.

Four classes of plants were surveyed: (1) those using natural gas; (2) small stoker-fired boilers; (3) large stoker-fired boilers; and (4) pulverized fuel fired boilers.

A gas flame is known to be very clean. Gas burns without cinders and practically without soot. Hence the exceedingly small amount of steam required to keep gas-fired boilers clean.

Regarding the great difference in stoker-fired boilers, it is pointed out that the smaller ones are in older installations and consequently less efficient than the large modern plants. Also, the soot cleaning equipment on the smaller units is probably less effective.

The report shows that soot blowers on pulverized coal boilers are operated oftener than on stoker-fired boilers—two to three times as often. Of course, more soot and ash are carried along with the gases in pulverized coal boilers.

Per cent of total steam used for soot blowing:

Natural gas	0.0002
Stoker-fired—12,000 to 23,000 sq. ft.	0.2
Stoker-fired— 6,000 to 7,000 sq. ft.	0.6
Pulverized coal	0.5

50,000,000 Bbl. Evaporation Loss

IT IS estimated by a prominent Chicago concern that the loss in the oil industry of the United States through evaporation alone is greater than 50,000,000 barrels per year.

In other words, owing to the fact that oil is commonly allowed to stand out in the open—uncovered —50,000,000 barrels evaporate into the atmosphere annually.

In the July, 1926, number of THE PAPER INDUSTRY, I commented on a large fire loss in California which amounted to 8,000,000 barrels of oil. This annual evaporation loss, however, is over six times as great. In other words, its equivalent in horse power is three times as great as the total power obtainable from Niagara Falls. Thus if the oil were saved and used in engines of the Diesel type, we would obtain power therefrom equivalent to that of Niagara Falls if Niagara were three times as high as it is now, if the volume of water going over the falls were the same, and if ALL of the energy were utilized.

Future Heat and Power

EVERYBODY is interested in the great question, "From what source will future generations derive their heat and power?"

Nobody knows the answer. One engineer in a well written paper read before the American Society of Mechanical Engineers recently said that he considers the future a thing that we needn't worry about. He believes that "science will find a way," but he doesn't know how they are going to do it. He evidently possesses that thing known in the bible as "faith."

But I am one of those who are inclined to view the situation with more or less alarm. The liquid fuel supply of the United States is already showing signs of failure and may be exhausted within a decade. I am in favor of conserving it and not wasting it as at present. I am in favor of restricting the rate of production. We should buy liquid fuel from foreign countries rather than entirely use up our own natural supply.

Claims have been made that sufficient oil can be extracted from shale to fill all demands for many years, but nobody has yet been able to extract the oil from the shale at a price that will begin to compete with oil from wells. I am informed that if our source of supply were dependent upon shale, and if we wanted to send our battle fleet across the Atlantic, it would require the mining, handling, and treating of nearly 1,500,000 tons of shale, or approximately the weight of the entire fleet.

Water power will not solve the problem. Steinmetz figured that out very carefully before he died. He proved that if the entire rainfall over the United

States were utilized it would supply only a small fractional part of the needs of the population.

Tides will probably be utilized, but the harnessing of tides is very expensive. Besides, when it comes to furnishing heat, electricity cannot compare with good old coal, wood, and oil.

No worthwhile "sun engine" has as yet been developed. If some engineer could manage to place steam boilers on the sun and pipe the steam to the earth he would, according to one authority, obtain 12,500 h. p. per square foot. But sun heated boilers on this earth have been all but a fizzle.

I am convinced that engineers of the future are going to have some decidedly knotty problems on their hands. We can assist them materially right now by conserving all heat producing products, especially coal and oil. We should do so.

Scale Removing Kink

A prominent manufacturer of evaporators taught me a useful kink a number of years ago for removing scale. The method is used in his evaporators and he informed me that it works very well.

The evaporator is a reversible process evaporator. Possibly some readers are familiar with it. It is so made that in a six effect apparatus, for example, either end may be the first effect and either end effect may be the sixth effect. Thus, steam is first admitted into one end at a given pressure and temperature and it comes out of the other end at a lower pressure and temperature. After several days of operation, depending upon the amount of scaling matter contained in the liquor or water, the process is reversed. Steam is admitted into the "other" end, and the tubes which were formerly comparatively cool are now warmer. As a result the scale cannot form to a great depth. Scale is not entirely eliminated in this way, but when operated properly its thickness seldom if ever becomes greater than the thickness of an ordinary business or "calling card."

Similarly, he informed me that this same method is applicable to condenser tubes. By alternately heating and cooling condenser tubes they will expand, and contract, causing the scale to loosen and fall off. It is an inexpensive and effective method.

Kilowatt Horsepower Scale

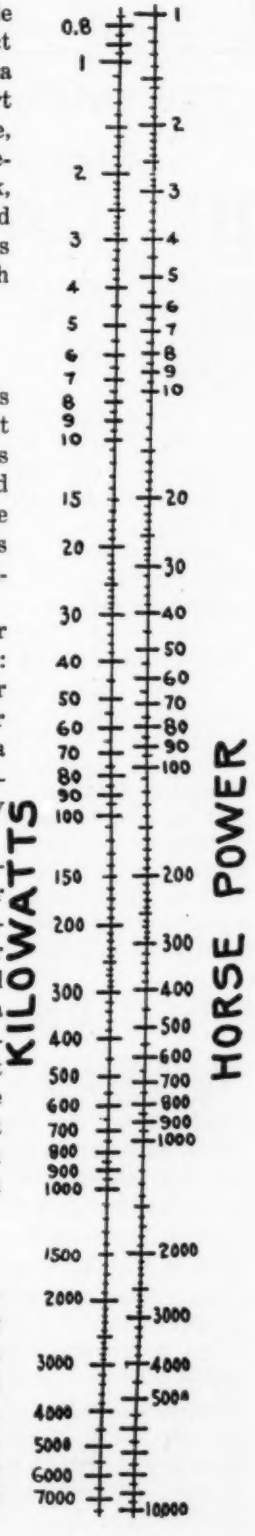
HERE is a scale that will be of interest to paper mill engineers because it gives the kilowatts in any number of horsepower in a jiffy. Or, it will give the horsepower in any number of kilowatts. As will be noted it is complete from 1 to 10,000 horsepower, within which range most powers are included.

For example, how many horsepower in 1,000 kilowatts? Just glance from the 1,000 on the kilowatt side to the horsepower side, and there's the answer—1350 horsepower.

Or, how many kilowatts in 1,000 horsepower? Glance across in the opposite direction and there's the answer again—750 kilowatts.

Of course, the exact answer is 745.65 kilowatts, but for most ordinary and practical purposes 750 will do very well indeed.

I doubt if it would be possible to make a chart more compact than this and yet include such a wide range of power. A chart could be made more accurate, no doubt, but that would require much painstaking work, and in the end this chart would very likely prove to be just as useful for ordinary work such as generally demanded.



Boiler Corrosion

WHEN boiler corrosion is **Below** the water line, it generally indicates that acid is contained in the water. And when the corrosion is **Above** the water line, it usually indicates that the water contains considerable air.

A method recommended for preventing corrosion is this: cover the surface of the boiler both above and below the water line with a thin lime coat. Soda ash in small quantities introduced in the feed water may also be helpful.

Preferably though, if corrosion is considerable— put your problems in the hands of unbiased consulting feed water specialists. Probably you need a deconcentrator. Probably a deaerator. Probably boiler compound will suffice. Or a hot process softener. Or the zeolite system. There is only one **Best** way in which to solve a given problem of corrosion, or a given problem of boiler scale.

Injuries and death are commonly caused by the catching and winding up of clothes. The engineer and mechanic must constantly be on guard against it, because in the paper industry we have much revolving machinery in which danger lurks.

Editorial Comment

By WILLIAM SIBLEY

The Origin and Meaning of Suggestion Systems

BACK in 1894, John H. Patterson, of National Cash Register fame, asked an employee of his organization: "Why not make your suggestions in writing—if only to show your foreman you are capable of holding a better position?" To which the man replied: "What's the use? If I did, the foreman would take all the credit." This pointed reply caused Mr. Patterson immediately to set up and put into operation a system whereby his employees might make suggestions which would benefit not only the company but themselves, and it is this incident that is the accredited origin of all present-day suggestion systems.

Since that time, countless institutions have organized suggestion systems with the result that, like undeveloped water power, the ideas of the man on the job have been harnessed and turned to productive use instead of being allowed to go to waste.

Indeed, a healthy, thriving suggestion system is one of the best possible evidences of satisfactory employee relations. Where a suggestion system flourishes there must also be mutual confidence between management and men, plus able foremanship, manifest interest on the part of the workers in both production and economy, an effort toward reduction of accident hazards, and a high quality of workmanship as well as of product, since all these are but the natural concomitants of a well ordered, steady moving suggestion system.

Rowing Upstream

WHOEVER has had the experience of rowing upstream will bear witness to the discouraging character of the operation. It may be possible to make headway if the current be not too swift, but the energy expended is out of all proportion to the ground gained. Furthermore, if you row against the current, you must keep everlastingly at it. If you stop to rest for a minute you are carried backward.

It is like that when a business man or firm tries to buck the tide of public preference. Several cases of such opposition readily come to mind. When the radio appeared, and the public wanted radio sets, phonograph manufacturers spent many thousands of dollars trying to persuade the public that a phonograph was better than a radio because you could select your records, but must take your broadcasts as they came.

One of the best cars on the market failed to gain popular favor because of the design of its hood. Just the moment its lines were made to conform to all other automobiles, sales doubled, then trebled.

Manufacturers have spent large sums in fighting the chain stores, but chain stores represent an economic trend. They get goods to the consumer at a lower cost. Now many of those manufacturers are glad to sell to chain stores.

At present, a well-known auto accessory manufacturer is spending good money in a courageous effort to persuade people away from the fad for ornamental radiator caps, when he ought to be adapting his device to fit in with the popular fancy.

It is vastly easier to row with the tide than against it, even though by dint of persistent effort you are able to make gains. Adapting your goods, your service, your appeal to the popular demand spells profit. In business the public must be the judge of what it wants. It is indeed possible—and profitable—to create new desires by advertising, but not to turn back the current of fashion. Style, fashion, the popular desire—these are hard currents to pull against. Don't buck the trend. Row with it.

Our Stake in World Affairs

AMERICAN business men generally have formed the habit of regarding foreign affairs with only mild interest, if not outright indifference. They reason that only 5 per cent of American trade is foreign, while 95 per cent is domestic. While they are right in believing the domestic market is far more important, developments since the war have so interlaced international economic relationships that our own domestic situation may now be more seriously affected by occurrences abroad than ever before.

According to the United Business Service there are three points to which we must give careful attention. They are:

1—About thirteen billions of American money is invested in foreign securities, lands, or enterprises, as against three billions of foreign capital invested here. How affairs are going with our debtors, partners, or creditors must be of more than passing interest. American prosperity is tied up with world prosperity.

2—Simultaneously with being a long term creditor, by reason of our large holdings of foreign securities, we are also a short term debtor to an amount recently estimated as being $1,443,000,000. This is the amount deposited by foreignors in American banks as demand or short time deposits. Many of us re-

—— on Timely Subjects

member the disturbance to our security markets that attended the outbreak of the war. The effect today of any major political disturbance in Europe would be much greater. Heavy withdrawals of cash plus depreciation in the value of our investments abroad would put a most severe strain even upon our well-fortified banking system.

3—Britain, Germany, France, Belgium and other countries lack the wealth of natural resources that we possess. Their profit can come only by selling their labor in the form of manufactured products. Great industrial combinations are under way; their technical efficiency is being improved. They are after business in dead earnest, and must get it to live. An era of intense industrial competition is ahead, the importance of which we can neither afford to ignore nor underestimate.

For these reasons, plus others such as aviation development and radio transmission, it is highly important that we pay close attention to developments abroad—both economic and political. We cannot escape their effects.

"Penny Wise and Pound Foolish"

PROBABLY the above maxim far antidates the introduction of the present factory of production. If some twentieth century sage were to coin such an epigram it would doubtless read "Pound Wise and Penny Foolish," for the average industrialist is shrewd and discerning in the matter of large amounts, but entirely "too busy" to pay attention to the details of the penny expenditures. This tendency results in the purchase or installation of the best possible grade of machines and equipment, and the employment of the most capable executives and department heads—but the provision of cheap, tawdry tools and supplies upon which every employee is entirely dependent.

In New Jersey there is a purchasing agent who has been instructed to submit all large equipment requisitions to the management for signature but who has complete authority over the purchases of small tools and supplies. This policy has led to the installation of splendid machinery—and the provision of wrenches that break their jaws, hammers that batter their heads, wire that snaps, insulation that chaffs, and calipers that are not true. Such are expensive practices.

It is the little things in industry that are overlooked—but it is the little things that count.

The Industrial Situation in Brief

WEIGHING the various influencing industrial factors one with the other, it is gratifying to find the favorable factors for overbalancing those counted unfavorable.

On the debit side of the ledger we have manufacturer's inventories that are still large, in spite of summer curtailment, stock speculation looming to alarming proportions, industrial profits irregular and in general tending downward; and the steel and automotive industries less active than one year ago.

The brighter side of the picture, however, shows agricultural purchasing power high, with crops turning out better than prophesied; wholesale trade gaining; car loadings expanding slowly which would indicate increased consumption; the gradual disappearance of the coal strike menace; sustained activity in building trades; and bank debits continuing their upward trend.

Sound health, with the prospect of immediate seasonal increases, is the present day condition of industry.

Coolidge Policies Will Continue

REGARDLESS of the varied interpretations on the word "choose," we believe the recent declaration of Mr. Coolidge expresses a sincere desire on his part to retire from office at the expiration of his present term. The probability is, this desire will be carried out.

Of one thing we feel convinced, however; Coolidge's influence will be strongly exerted to the end that the Coolidge policies shall be continued. And this fact is of great importance to business.

The influence of the present Administration has been friendly to business, both big and little. Every effort has been exerted to maintain business stability and to meet all problems in a helpful, constructive way. There has been no courting of "popular" favor by harrying attacks on industry or finance. A spirit of helpfulness has been the dominating note. Mr. Coolidge has firmly resisted not only tendencies toward governmental extravagance, but just as firmly has he blocked all efforts to institute economically unsound policies. The present powerful influence of the Chief Executive will doubtless insure the continuance of policies making for tax reduction, standardization, economy and a generally sound business administration.

The Paper Industry Annual Safety Contest

Accumulative Ranking of Paper and Pulp Mills, Members National Safety Council as of June 30, 1927

GROUP A

Rank	Member	Mill	No. of Employees	Hours Worked	No. of Accidents	Days Lost	Frequency Rate	Severity Rate
1	Nekoosa Edwards Paper Co.	Port Edwards, Wis.	948	1,345,455	7	56	5.21	.041
2	The Champion Coated Paper Co.	Hamilton, O., No. 2	547	663,050	5	28	7.54	.042
3	Mead Pulp & Paper Co.	Chillicothe, O.	674	937,070	7	42	7.47	.044
4	International Paper Co.	Hudson River	738	951,626	11	91	11.56	.10
5	Laurentide Co., Ltd.	Grand Mere, Que.	1047	1,255,295	17	205	13.55	.16
6	Dill & Collins Co.	Philadelphia, Pa.	619	885,744	15	146	16.94	.16
6	Marathon Paper Mills Co.	Rothschild, Wis.	587	814,270	20	155	24.56	.19
7	Hammermill Paper Co.	Erie, Pa.	1287	1,941,950	46	385	23.69	.20
8	International Paper Co.	Otis	726	952,497	8	203	8.40	.21
9	Kimberly-Clark Co.	Falls	583	771,791	7	170	9.07	.22
10	The Northwest Paper Co.	Cloquet	530	730,825	25	190	34.20	.26
11	West Virginia Pulp & Paper Co.	Tyrone, Pa.	517	653,820	13	176	19.89	.27
12	The Champion Coated Paper Co.	Hamilton, O., Coating	1220	1,451,065	19	455	13.06	.31
13	Pacific Mills, Ltd.	Ocean Falls, B. C.	1067	1,529,917	88	628	57.55	.41
14	Kimberly-Clark Co.	Niagara	648	822,224	2	360	2.43	.44
15	Northern Paper Mills	Green Bay, Wis.	559	782,331	37	351	47.29	.45
16	Continental Paper & Bag Mills Corp.	Rumford, Maine	720	934,018	38	442	40.70	.47
17	Bogalusa Paper Co.	Bogalusa, La.	738	1,283,110	88	615	68.59	.48
18	West Virginia Pulp & Paper Co.	Luke, Md.	1308	1,656,544	87	896	52.54	.54
19	Kimberly-Clark Co.	Kimberly	937	1,248,535	15	1934	12.02	1.55
20	St. Croix Paper Co.	Woodland, Me.	454	574,356	21	1256	36.56	2.19
21	The Parker-Young Co.	Lincoln, N. H.	513	732,394	40	1621	54.64	2.21
22	St. Maurice Valley Corp.	Shawinigan Falls, Que.	973	1,354,670	69	3097	50.96	2.29
	Totals		17940	24,271,557	685	13502	28.22	.56

GROUP B

1	International Paper Co.	Niagara Falls	497	674,956	2	66	2.96	.10
2	Bird & Son, Inc.	E. Walpole, Mass.	394	557,916	12	67	21.50	.12
3	International Paper Co.	Glen No. 5	454	557,203	10	83	17.95	.15
3	Strathmore Paper Co.	Mittineague No. 1	256	308,769	7	46	22.83	.15
4	Rhinelander Paper Co.	Rhinelander, Wis.	382	485,526	12	91	24.72	.19
4	Mead Fibre Co.	Kingsport, Tenn.	310	425,494	3	70	7.05	.19
4	Falls Manufacturing Co.	Oconto Falls, Wis.	324	464,274	10	88	21.54	.19
5	American Writing Paper Co.	Beebe and Holbrook	222	278,752	4	56	14.35	.20
6	Port Huron Sulphite & Paper Co.	Port Huron, Mich.	238	318,706	10	85	31.38	.27
7	American Writing Paper Co.	Crocker	247	278,809	8	82	28.70	.29
8	Cornell Wood Products Co.	Cornell, Wis.	348	509,934	15	159	29.42	.31
9	Michigan Paper Co.	Plainwell, Mich.	295	385,158	12	128	31.16	.33
10	Port Howard Paper Co.	Green Bay, Wis.	249	214,866	11	75	51.21	.35
11	Hollingsworth & Vose Co.	E. Walpole, Mass.	268	302,607	8	168	26.44	.56
12	Southern International Paper Co.	Bastrop, La.	381	694,890	52	433	74.83	.62
13	Hollingsworth & Vose Co.	West Croton, Miss.	220	212,934	11	143	51.67	.67
14	Marinette & Menominee Paper Co.	Marinette, Wis.	352	489,382	18	413	36.79	.84
15	Wausau Sulphate Fibre Co.	Mosinee, Wis.	435	567,677	35	552	61.67	.97
16	Escanaba Paper Co.	Escanaba, Mich.	258	319,189	34	314	106.56	.98
17	Great Western Paper Co.	Ladysmith, Wis.	317	398,060	17	396	42.72	1.00
18	Scott Paper Co.	Chester, Pa.	481	602,468	49	649	81.34	1.08
19	International Paper Co.	Fort Edward No. 2	193	257,731	3	315	11.64	1.22
20	Thilmany Pulp & Paper Co.	Kaukauna Sulphate	253	310,127	23	464	72.75	1.47
21	Finch, Pruyn & Co., Inc.	Glen Falls, N. Y.	348	430,239	23	677	53.48	1.57
22	Thilmany Pulp & Paper Co.	Kaukauna Paper	404	505,699	29	943	57.36	1.87
23	The Champion Coated Paper Co.	Hamilton, O. Paper No. 1	450	622,944	20	1185	32.10	1.90
24	Racquette River Paper Co.	Potsdam, N. Y.	327	83,234	23	163	276.23	1.96
25	International Paper Co.	De Grasse Mill	396	552,833	34	1186	61.51	2.15
	Totals		9299	11,256,551	495	9106	44.00	.81

GROUP C

1	Provincial Paper Mills, Ltd.	Montrose Div.	167	200,754	0	0	0	0
1	Kimberly-Clark Co.	Neenah	73	94,634	0	0	0	0
1	International Paper Co.	Riley	68	84,989	0	0	0	0
1	U. S. Gypsum Co.	Gypsum, Ohio	57	75,903	0	0	0	0
1	Lincoln Pulp & Paper Co, Ltd	Lincoln	65	75,174	0	0	0	0
1	U. S. Gypsum Co.	Lancaster, Ohio	46	56,899	0	0	0	0
2	Kimberly-Clark Co.	Atlas	116	140,400	1	2	7.12	.01
3	Bird & Son, Inc.	Phillipsdale	159	203,191	3	7	14.77	.03
4	Marinette & Menominee Paper Co.	Menominee	153	225,535	1	12	4.44	.05
5	The Upson Co.	Lockport, N. Y.	92	119,500	2	7	16.74	.06
5	Kimberly-Clark Co.	Badger-Globe	90	107,065	1	6	9.35	.06
6	Strathmore Paper Co.	Mittineague No. 2	88	120,183	2	10	16.65	.08
6	International Paper Co.	Livermore	88	116,064	2	9	17.24	.08
7	Gardner & Harvey Co.	No. 2	103	146,723	3	14	20.45	.10
8	Strathmore Paper Co.	Woronoco, Mass. No. 2	188	207,997	6	27	28.86	.14
8	American Writing Paper Co.	Holyoke, Mass.	192	153,961	4	20	25.99	.13
9	U. S. Gypsum Co.	Oakfield, N. Y.	69	103,832	1	15	9.63	.14
9	Strathmore Paper Co.	Woronoco No. 1	118	176,515	1	26	5.67	.15
10	American Writing Paper Co.	Monoouck	140	169,086	3	28	17.75	.15
11	Gardner & Harvey Co.	No. 3	63	95,449	1	15	10.48	.16
12	International Paper Co.	Winnipiseogee	97	119,761	2	20	25.06	.17
13	Gardner & Harvey Co.	No. 1	160	222,253	7	39	31.50	.18
14	American Writing Paper Co.	Linden	177	212,001	6	43	28.30	.20
14	The Adams Bag Co.	Chagrin Falls, Ohio	147	197,073	2	39	10.15	.20
14	American Writing Paper Co.	Parsons	154	185,481	3	37	10.79	.20
15	International Paper Co.	Webster No. 9	113	152,407	4	35	26.25	.23
16	Bergstrom Paper Co.	Neenah, Wis.	190	224,896	18	76	80.06	.27
17	Defiance Paper Co.	No. 3	80	96,261	4	28	41.56	.29
18	American Writing Paper Co.	Norman	108	123,181	8	42	24.37	.34
19	American Writing Paper Co.	Mt. Tom	81	90,577	1	33	11.04	.36
20	Union Bag & Paper Corp.	Fenimore Sulphite	100	136,735	9	60	65.84	.44
21	Sorg-Oglesby-Smith Paper Co's.	Sorg	171	233,136	8	104	34.32	.45
21	Union Bag & Paper Corp.	Webster No. 9	99	126,212	2	57	15.85	.45
22	Union Bag & Paper Corp.	No. 5	70	102,977	4	48	38.87	.47
23	Mead Pulp & Paper Co.	Peerless	103	128,736	7	63	54.39	.49
24	Lincoln Pulp and Paper Co., Ltd.	Sulphite	113	151,427	8	75	52.84	.50
25	Smith-Oglesby-Smith Paper Co's.	Oglesby	165	258,826	11	140	42.50	.54
25	American Writing Paper Co.	Albion	133	161,786	6	88	37.10	.54
26	Union Bag & Paper Corp.	Allen	90	113,945	7	61	61.46	.57
27	Itasca Paper Co.	Grand Rapids, Minn.	162	235,839	14	138	59.37	.59
28	International Paper Co.	Montague	183	243,708	7	147	28.72	.60
29	American Writing Paper Co.	Gill	147	71,897	3	48	41.73	.67
30	American Writing Paper Co.	Riverside	190	220,895	8	154	45.29	.70
31	International Paper Co.	Glen Falls No. 1	200	241,134	19	201	78.81	.83
32	Defiance Paper Co.	No. 1	141	167,691	9	146	53.70	.87
32	Union Bag & Paper Corp.	Cheboygan Sulphite	71	113,609	6	99	52.82	.87
32	Robertson Paper Co.	Montville, Conn.	34	40,328	1	40	24.80	.99
33	American Writing Paper Co.	Wauregan	69	86,288	3	85	34.77	.99
34	Bemis Bro. Bag Co.	Peoria	114	126,990	9	129	70.92	1.01
35	Lincoln Pulp & Paper Co., Ltd.	Lybster	114	151,836	8	160	52.70	1.05
36	Sorg-Oglesby-Smith Paper Co's.	Smith	47	62,275	2	70	32.12	1.12
37	American Writing Paper Co.	Dickinson	113	136,709	8	200	58.52	1.46
38	The Franklin Board & Paper Co.	Franklin, Ohio	103	130,802	13	257	99.39	1.96
39	Thilmany Pulp & Paper Co.	Appleton	91	115,090	7	322	60.82	2.80
40	The Northwest Paper Co.	Brainerd	166	219,662	16	1111	72.86	5.06
41	Union Bag & Paper Corp.	Fenimore Paper	120	198,418	12	1209	60.48	6.09
	Totals		6547	8,274,496	288	5788	34.82	.70

Sixteenth Annual Safety Congress

Paper and Pulp Group Outstanding Success—Plans for Coming Years Work Comprehensive

WITH Chicago extending her most royal welcome to the delegates, visitors, and attendants of the Sixteenth Annual Safety Congress, which opened at the Hotel Stevens, Chicago, Monday, September 26 and closed Friday, September 30th, the Paper and Pulp Section of the National Safety Council with 85 representatives to attend the meetings, made an outstanding showing in progress and future plans in safety work.

The first days' sessions were general ones for all delegates attending, and together with the opportunity of seeing the unique Safety Exhibit held in the palatial Exhibition hall of the hotel, afforded the opportunity of entering into the spirit of the congress,—a spirit which pervaded and characterized all the meetings during the entire week. Everyone spoke, thought, and felt Safety.

Never did a more enthusiastic group of paper and pulp men journey to any city to listen to the message of safety and the conservation of human life. Never did a more spirited group meet to exchange messages of experience that would demonstrate their work accomplished during the year. With Chairman W. J. Peacock presiding the meetings flourished with note of sincerity and value, and the spirit of safety reached the peak at the Wednesday Luncheon when the trophies were awarded to the mills having the best no-accident record for the period of the Contest, January 1 to June 30, 1927.

The program was an unusually comprehensive one, and so arranged to bring problems of safety from the highest executive in the mill down to the smallest hand in the establishment. And executives and mill hands all listened with eagerness to learn the lessons of experience given to them and carry the message back to their mill for the success of the coming year. The discussions were unusually valuable, and the problems brought up were vital ones that brought into play an interchange of ideas and experiences never to be forgotten. And the keynote of the entire congress was the bringing to realize that Safety and Production go hand in hand,—the realization which means that Safety work is on the trend for even greater success in the coming years in the paper and pulp field.

FIRST SESSION

The first session of the Paper and Pulp Section opened Tuesday morning, September 27th at 9:30 o'clock in the Stevens Hotel, with Chairman W. J. Peacock, Northern Paper Mills, Green Bay, Wis., presiding.

Chairman Peacock opened the meeting by welcoming all present and extending the genial suggestion that every one get acquainted and be seated in groups by regions or states. All present entered into the spirit of the meeting by making himself and his company known.

Committee Reports

Mr. Peacock followed with a request for the secretary's report. Ameil Umberham, secretary for the section, stated that the years' work consisted mainly of a few news letters, and asked that the program committee be called upon for their report.

M. G. Hoyman, Kimberly-Clark Co., Neenah, Wis., Chairman of Program Committee asked that the program be allowed to speak for itself.

W. A. Gleason, Hammermill Paper Co., Erie, Pa., was then called on to give Bulletin and Poster Committee report, He stated that only four mills had contributed posters to the section during the year, and urged all company representatives to realize the big bet they were over-looking by not using bulletins and posters. He said that the bulletin and poster was the best stimulus for safety in the mill—"get the spirit of the poster"—was his urge. Even a homemade bulletin carries a message of weight in your mill, and he brought out the interesting fact that the contribution of merely an idea to the National Safety Council, would set their artists to work on a poster that would be credited to the section. Mr. Peacock then commented on the splendid posters and bulletins placarded in the room.

Franz H. Rosebush, Nekoosa-Edwards Paper Co., Port Edwards, Wis., then asked to make a special suggestion, as follows: "That our nominating committee nominate officers with the idea that they will serve for two years. The first year, they would serve actively in taking upon themselves the burden of the program in running the meetings and so on. The second year, they would act in an advisory capacity. By that process I believe we would have a permanent organization of officers. It is a pretty hard test, I know, for new officers to

Picture taken at luncheon of Paper and Pulp Section of the National Safety Council in the Stevens Hotel, Chicago, Wednesday, September 28, 1927, during 16th Annual Safety Congress

start in, not being acquainted with everything. With valuable timber for speakers available, it is sometimes not a hard matter to start, but by this method of having the old officers in supervisory capacities, it will build up a permanent organization." Mr. Rosebush asked that this be considered and taken up at a further meeting.

Chairman Peacock then made announcement of the special business session for Thursday morning, and followed with his report. He summarized the work of the Section with a fine history of its growth and progress, and the part that various persons had played in that growth since the inception of the section in 1915 at Philadelphia.

The growth was clearly brought out as one of slow and steady progress—not meteoric—and that the section had risen from a few paper and pulp men, and more insurance men present at the first meeting, to one of great size and activity where the most important paper and pulp mill executives attended, and even drew men from other fields and commissions to profit from the success of the section's phenomenal and successful growth.

Chairman Peacock then summoned W. A. Gleason, Safety Engineer, Hammermill Paper Co., Erie, Pa., to the chair, and said: "You are now in a major section, gentlemen. Major in size, in interest, and in activities. Let's feel the bigness of this thing, and carry back to our mills the sense of belonging to a section which is certainly on the map in the National Safety Council." He then announced the nominating committee as consisting of N. A. Bartlett, W. A. Gleason, E. A. Kennedy, and R. S. Turner. Mr. Gleason then opened up the meeting and announced the first speaker.

Accident Analysis, Records and Costs

Alvin F. Record, supervisor of safety and sanitation, International Paper Co., Chisholm, Me., was the first speaker on the program, and brought a most valuable message to the section.

An Age of Statistics. Mr. Record brought out the fact firmly that we are living in an age where facts, figures and statistics are vitally necessary. No business man tries to do business without keeping an accurate record. The man on the job directly responsible for the accident cannot help but be impressed with statistics.

International's Method of Keeping Records. Slides were then shown as to how the International Paper Co., keeps records of accidents and costs, and analyzes them. The first report which the company uses at the time of an accident is the basic one and contains all information used in subsequent reports. This report originates in the first aid room, and the doctor's statement as well as the nurses' and the employee's statement as to how the accident occurred, is entered on it.

The next slide was one showing the cost of accidents. This form is used at the mill end and serves the purpose of placing before the interested parties the story of each month's performance as far as the number of accidents, cost and lost time is concerned. It keeps the mill executives posted on just what progress is being made by his safety organization.

Figure three, the next slide, was a graph depicting the description of injuries. This gives a very detailed report and all mills are numbered so each mill's record can be traced easily.

Analyzing the Accident. The last illustration shown in connection with Mr. Record's talk was a four-year chart showing the experience of each of the company's mills. Through this record the safety director can trace just where the trouble lies and how best it can be remedied.

Discussion. Mr. Gleason then asked for a discussion and questions on Mr. Record's paper, and opened the discussion by stating that he didn't believe there was any question as to the value of keeping records and their analysis in the place of the old trial and error methods. In his travels to mills, the safety men are often heard to say they cannot get any co-operation from the superintendents; can't get any safeguards, or can't get any help at all in accident prevention work. "If you have a set of charts showing just what the cost of accident per ton of paper is, you will get results," he stated.

G. S. Stearns of Consolidated Water Power and Paper Co., Appleton, Wis., inquired if there was any competitive method of creating interest in establishing a basis of comparison. Mr. Record replied in the negative, stating that the graph was as far as they went, and it is just a matter of pride between the different mills to excel one another.

F. A. Smith, Titanium Pigment Co., Carondelet, Mo., asked if the separate mills were advised of their standing each month, or if only advised at the end of the year. Mr. Record stated they are advised quarterly, and the last report is the annual one covering everything.

John W. Newton, Eastman Kodak Co., Rochester, N. Y., asked if the mills were given different handicaps, as obviously the hazards were not the same in all their mills. Mr. Record stated that they were not, as they figured the lost time of 100 days for each time an accident occurred was sufficient.

F. H. Rosebush inquired what items entered into accident cost, and got the reply that compensation, medical bills, and incidental expense were the ones concerned in the cost.

J. J. Tellington, Brown Co., Berlin, N. H., noted the penalty for fatal accidents, and asked the object. The answer was given that 1000 days is arbitrarily charged to the mill more as a warning for the future than anything else.

Mr. Rosebush then inquired how you could figure cost of accidents if insurance was carried. Mr. Record suggested that the elimination of the premium cost paid for insurance should take care of that.

Ernest Augustus, Mead Pulp and Paper Co., Chillicothe, O., told of their plan of figuring accident cost. They have an individual card on every man in the plant regardless of what the injury was, and they estimate each cost no matter if it is just the dressing of a wound. In this way, they can at any time figure the time lost.

John Lundrigan, industrial superintendent of all of International Paper Company's mills spoke in defense of Mr. Record, and made the effort to clear up all questions on the computing of accident cost. He stated that International were now working on a chart which shows not only the cost per ton of paper for each mill, but the cost per individual employee on account of accidents. The cost includes everything that has to do with accidents, and he stated further that the administration or routine of industrial accidents and the paying of compensation are carried on by two different departments.

Mr. Lundrigan then brought out the different methods of computing cost in the various states in this country, and the provinces of Canada. Taxes, laws, and conditions make these computations differ. But, there are two questions on the form that must be answered, and these are, "What can be done to remedy such accidents likely to occur" and, "What have YOU done to carry out this recommendation." If these questions are not answered, the form is returned to the mill. When these are answered, a finger can be placed on the rule that was not complied with, and the possibility of the accident recurring is eliminated.

B. D. Rogers, Bird & Son, East Walpole, Mass., F. H. Rosebush, and others brought out the facts that in their mills the foremen's signatures must appear on the forms after the accidents have occurred. In Wisconsin, it was learned, the signature of the foreman is part of the State law.

Mr. Gleason then brought the discussion to a close, and introduced the next speaker on the program, as B. D. Rogers, manager of the labor bureau, Bird & Son, Inc., East Walpole, Mass.

Plant Inspection and Safety Committees

The Safety Organization. The first point Mr. Rogers emphasized was the importance of the entire working organization being heart and soul in safety work. The owners, management, supervisors, and workers must all have the cause of safety keenly in mind, and be working toward one definite goal.

Their safety organization consists of a central safety committee, five local plant safety committees and the safety inspector. The function of the central safety committee is to direct and keep alive all matters pertaining to safety, and consists of the general manufacturing manager, assistant manufacturing manager, plant engineer, superintendents of all plants, chief engineer, safety inspector and manager of labor bureau.

The local plant committees consist of from 10 to 15 members depending on number of departments or workers in those plants. The superintendent of each plant is the permanent

chairman of the committee. The other members include foremen and workers. Appointments are made every 6 months by the Central Safety Committee upon recommendation of the superintendent. The safety inspector is directly responsible to the general manufacturing manager, and his inspections are regular and continuous.

Work of the Safety Inspector. The work of the safety inspector is to eliminate accident hazards through unsafe conditions and careless practices; maintain safe working by co-operation with the foreman; follow-up and investigate accidents that do occur; co-operate with insurance and other outside agencies, and prevent fires.

Work of the Committees. The work of the plant safety committees is to sell the safety idea to the workers in the organization. The suggestions made by the members of the plant committees should and do receive careful consideration. Safety suggestions adopted from workers are given publicity, and go on record to the credit of that worker.

The names of the plant committee men are posted in the various departments so that all employees know who the safety man in their section is. They use their house-organ to advantage in publishing pictures and work of the plant committee men.

Their Plant Inspection Methods. The method of plant inspection differs in their various plants and from time to time. In some committees two or three members are delegated to inspection tours for that month while in others all members of the committees are delegated to inspection tours. These men are released from their jobs for as long a period as is necessary to make the inspections and report their findings and recommendations are made at the meetings. Their best inspections and results come from an inspection where special things have been asked to be inspected. In this way the men are looking for specific things instead of everything in general and better results are obtained.

Procedure of Welcoming New Members. When a new man is appointed he is sent a personal letter from the Central Safety Committee and welcomed into the plant safety committee, told of his duties, and what is expected of him. When a workman is serving on a committee, and his membership is changed and someone else is appointed, he also receives a letter reminding him that his safety work has just begun, and that he must be a disciple of safety even more than ever, and spread the news from worker to worker about safe and careful methods.

Judgment of Accidents. All accidents are carefully gone over and discussed by the plant committees. The safety committee often sits as a court of judgment on workers who have been injured. In this way the workers know that his fellow-workers are taking the accident as a serious matter. The judgment of the case is posted on the bulletin board for the knowledge of the mill, or given other publicity, so that all concerned can know the judgment in the accident.

It is clear to see from their organization that while the foreman is frequently the authoritative link between the officials of the company including the safety inspector, the plant safety committees in Bird & Son are the invaluable co-operative links in their safety organization.

Discussion. K. L. Faist of Champion Coated Paper Co., Hamilton, O., inquired as to whether the members of their safety committee receive any remuneration, and received a negative answer, and reply that the spirit of the work is part of their job, and while the man is taken from his regular job for some of his safety work, he is not paid. Many meetings and banquets, etc. are held in Boston during the year, when problems are brought up for discussion, and a general good time is had.

J. J. Plzak, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., inquired as to the type of inspection made, and how they know at a glance that, say for instance a shaft, was all right. Mr. Rogers replied that there is a regular mechanical inspector on hoists and elevators as well as all outside inspection. The safety inspectors do not make a thorough inspection, but they do see that certain things are all right, that safe-guards are being used, and the like. When asked by Mr. Plzak if any such inspection is held which is practically a general overhauling of the machine, Mr. Rogers replied that he would give a practical example demonstrating his answer. In one of their factories, they handle paper rolls weighing something over 5000 lbs. On the drum of one of the cranes where the cable was installed, just a little solder was used, and one of these rolls went down, narrowly escaping three or four men. Since that time regular inspection on cranes, hoists, and so on have been made. They have an outside elevator inspection and a regular mechanical inspection perhaps three or four times a year.

When asked by Chairman Gleason if their safety committee took the place of the regular inspection, where they had people who were qualified to make inspection, Mr. Rogers replied with vehemence that the regular mechanical inspections never take the place of the safety inspections. You can't hold the safety committee responsible for certain mechanical defects, where a mechanical inspection would naturally be more thorough than an outside inspection.

Mr. Plzak then stated that he brought up this question because they had been having quite a bit of vibration, and wondered how a thorough inspection of a shaft could be made to determine crystallization. Mr. Sherman of the Titanium Pigment Co., stated that the practice in some mills and railroads is to anneal or use a heat treatment for certain pieces of equipment subject to crystallization. The crystals are molecuted in the heat and the piece of equipment under treatment is re-aligned to make it strong.

The discussion was then brought to a close by Chairman Gleason, who stated that at the Cleveland meeting, five or six superintendents attended, and when they returned to their mills each one gathered all the foremen about him, and made them go through the entire departments and interchange ideas. As a result, all departments were checked up on thoroughly and their safety record greatly improved.

Mr. Gleason then introduced C. K. Boyer, Manager Interlake Division of Consolidated Water Power and Paper Co., Appleton, Wis., as the next speaker on the subject of Standard Guarding and the Code.

Standard Guarding and the Code

Purpose of the Code. Mr. Boyer emphasized the fact that the purpose of the code is to provide reasonable safety for life, limb and health, and to promulgate the pursuit of "life, liberty and happiness" for the worker and his family, by making the mill a safe place to work in. He spoke further on the Code as follows:

"The Code does not suit all of us. Nor does all of the Code suit any of us. No single code can meet all of our ideas or individual experiences with industrial hazards. Some rule may cause us considerable difficulty and expense to reach its required safety standards. Perchance some of us do not even know that there is already in print this Safety Code of Paper and Pulp Mills. In any of the events, give the Code a careful study. Every Safety man, Employment Manager and Mill Executive cannot afford to disregard it. Then criticise it if you can, if you must, and perchance if you dare. Let's be honest with ourselves. Let's comply with the rules we cannot criticise fairly to ourselves. Do this much and before long our mills will be veritable show places of safety guards and safety methods. Let's pay for our privilege of criticising by coming across with the safety measures which we must admit to ourselves are fully justified."

Then Mr. Boyer went on to explain the complexity of modern paper making conditions, and how much more vital it is to have fool-proof safety methods in practice in the mills in this day and age than even ever before. And he ended with the singularly significant sentence on this topic by stating that "hazards so great can no longer be dealt with in ways that are haphazard."

Who Made the Code. Experienced industrial workers, executive and genuine welfare workers are responsible for the development of the Code. "Such men have learned from experience," said Mr. Boyer, "that railings of a certain height and construction will best protect elevated passage ways. They have observed that a simple toe-board placed along the edge of such an elevated structure will prevent a stray bolt or nut from breaking an unsuspecting head beneath. They have recorded the simple fact that any belt nip or gear pinch point that can be reached by a man's fingers at the end of his arm

should be shut up too tightly for those fingers to slip through. They have observed that any sharp projection on a revolving shaft will catch clothing, and hence they banished the murderous set screw of Noah's day in favor of the countersunk set screw. In short, there's a reason for every rule in these standard guarding codes. They are not arbitrary statements designed to arouse antagonism, but are common sense analyses of typical danger points with practical ways of eliminating the hazard. Hence, don't condemn any coded safety rule without first analyzing the possible reason for its creation. Generally, your own study will reveal that the safeguard suggested will mean not only added safety but greater production and hence lower production costs."

Other Warnings In the Code. Industry has become so specialized that hazards have become specific and peculiar in their nature. Mr. Boyer illustrated this statement by saying: "Hand barkers whittle off the fingers of wood room men only, and hence a specialized code suggests mechanical means to turn the blocks of wood. Chip bins are peculiar to pulp mills, so our special code prescribes safety belts and chains to prevent the digester helper from being buried under tons of chips or boiled to pieces in a hell of steam and sulphurous acid. The chemical industry, from its recent war experience suggests gas masks to protect the acid makers and bleach plant operators from brimstone and chlorine gases. Medical skill points out that personal cleanliness and fresh air will prevent lead poisoning from the use of litharge in lining digesters. The code might add that careful periodic medical examinations and blood tests will generally give sufficient warning, so that workers may be treated in time and changed to other work if necessary.

Mr. Boyer concluded his brilliant talk by saying that the living up to the Code, and the protection of the workers and ultimately the workers' family, is the promotion and guarantee of "Life, liberty and the pursuit of happiness to all."

Discussion. Chairman Peacock stated that the American Engineering Standards Committee is now ready to issue this Code as a permanent standard if they have the full approval of the Section, and he further suggested that the members of the Section correspond with Mr. Boyer on returning to their homes for any questions or suggestions in mind on the Code.

F. H. Rosebush brought out the fact that a great deal of work and time had been spent on the Code to get it in its present form, and suggested that as few changes be made as possible, as it would take the committee a long time to revise it if they started. He made a motion that the section give their approval to its use as suggested by the chairman, Mr. Peacock. This motion was seconded by A. S. Wilson of the American Writing Paper Co., Holyoke, Mass.

Discussion made after this motion indicated that many in the group had not read the Code, in fact did not know such a thing existed. So the motion was laid on the table, and the suggestion taken up that all members present read the Code between the first session and the second session the following day, and come prepared to vote on whether the Code was to be approved as it stood, and just what the status of the acceptance should be.

The first session meeting adjourned after the motion had been made that the question of the Code be settled on the following day at the second session.

SECOND SESSION

The second session of the Paper and Pulp Section opened at 9:30 A. M., Wednesday morning at the Hotel Stevens, Chairman W. J. Peacock presiding.

The first question brought up for discussion was the adoption of the Code in its present form. F. H. Rosebush of Nekoosa-Edwards Paper Co., Port Edwards, Wis., spoke as follows: "I suppose the gentlemen who expected this resolution yesterday have read it since, and are ready to go through with it." He spoke in favor of the code, and suggested that the members of the section allow the Code to become official and state that if any revisions or suggestions were made they be sent to the committee or persons designated to receive them, and they be added as an addenda to the Code. He further stated that it did seem impractical to set up a committee to revise the code. His motion follows: "I make a motion that we allow this code to be accepted with the understanding that within sixty days any criticisms shall be sent to proper designated persons to be decided at this time." John Lundrigan seconded the motion, and it was carried unanimously.

Mr. Peacock then designated R. M. Altman, Chairman of the original committee as the man to whom any suggestions or critisicms were to be sent, and reminded the section that there were many engineers present who could give advice or answer any questions on the subject. The Chairman then asked A. Scott Dowd, Editor of The Paper Industry to speak on the subject of the contest which had been discussed informally at a little meeting the evening before, and Mr. Dowd spoke giving the following resolution which was seconded and unanimously carried: "Be It Resolved that the rules governing The Paper Industry Safety Contest for 1928 be formed to include the provision in the event of a tie that the mill in such tie working the greatest number of man hours for the period of the Contest shall be declared the winner."

M. G. Hoyman was then called to the chair and presided at the second session meeting. He opened the meeting by saying: "We know that the greatest thing about this business of safety is selling it, and so this idea of selling safety is the only way that safety can be gotten across, and we have men here today that are going to tell you just how it is done." D. D. Thirkield, Safety Director of the Sorg-Oglesby-Smith Companies, Middletown, O., was the first speaker, and the title of his subject in the selling symposium was "Selling Safety in Paper Mills to Employees."

Selling Safety to Employees

His Inspiration. Mr. Thirkield told that he had been inspired for safety work at the Detroit meeting last year, and went home carrying the inspiration of the 15th congress in his mind, determined to do something along safety lines for his company. They opened their safety department January 1, 1927. At that time, he thought he was going to have two safety committees, one of foremen and the other of workmen, and elaborate plans for safety work.

His Work. He went on further to explain that he was so busy the first thirty days that he didn't have time to put any of his beautiful plans into effect. He didn't even organize a safety committee directly because he could not find enough men to put on a committee.

He found upon going over the mill carefully that everything was generally well guarded, and he made up his mind then and there that ninety per cent of the accidents were being caused by carelessness, and the only way to reduce accidents was to make the men careful. Then, he used the National Safety Council, and said that he couldn't have done much without them. He made 25 bulletin boards, and put them up at strategic points in the mill. He started mimeographing his own bulletins, and put the signs up every place all over the mill. These bulletins indicated safety progress during the month, and created great interest among the employees. After he conferred with other mills in the Miami Valley, he came to the conclusion that it would take about a year before he would have any signs of improvement, and in the year of 1925 his company had 73 accidents, and 2201 days lost, which he admitted was certainly not anything to be proud of.

Results in One Year. With their method of selling safety, the first nine months of 1927 brought only 29 lost time accidents, and 391 days lost, or a reduction of sixty per cent over that of 1925.

Their little house-organ known as "Sosco News" has been a most important medium of selling safety. He attributed some of his best results to the interest the house-organ had created, and the fact that when records were not published the men would come in the office and ask if the records were so bad that they could not be printed.

Mr. Thirkield also told that their experience had shown when a man got hurt it was the best time to sell him on safety. Their men are now enthusiastic about safety, for they have had it proven that accidents can be reduced. He feels confident in pursuing the quiet method of selling safety, and keeping the big thought ahead of them that human life is more valuable than any cure to be applied after the damage is done. He has found that the quiet method has brought better results in his company than any other.

Mr. Hoyman closed the discussion on Mr. Thirkield's paper by calling attention to the bright yellow and green sheets used by the Sorg-Oglesby-Smith Paper Company, as posters on the bulletin boards. He then introduced Mr. W. E. Walker, safety director, Kalamazoo Vegetable Parchment Company, Kalamazoo, Michigan, as the next speaker to talk on the selling of safety to foremen.

Selling Safety to Foremen

Foremen Psychology. Mr. Walker discussed an article of Heinrichs that appeared in the February issue of the National Safety News, and stated that this article showed that accidents cost the firm four times as much as compensable accidents. He then asked if any executive present or foreman were not sold on safety. He stated further that he would like to meet the executive that would hire a man not interested in the people working under him. The foreman that pays no attention to the possible business hazards or causes for accidents doesn't know whether his employees are doing a good day's work. He then added the hypothesis that no foreman would tolerate the boss giving him the machine that didn't produce goods. Why, then, should that same foreman not show an interest in the employee who is really the higher cost of producing.

Cost of Production. "I wonder if the foreman knows that his lack of attention to this man-producing factor may cost his employer a good many dollars in a good many ways," said Mr. Walker. He stated that he knew of a plant in 1925 that had 750 employees that had a bill of $5,730 for medicine. This total cost was for a total of 204 accidents on 750 employees. Besides the money spent for medical expense, 1201 days were lost, and figuring labor at $4.00 a day, plus the amount spent on medicine, to say nothing of the mental suffering, physical suffering and suffering of the workman's family, it is easy to see the amount that this mill owner suffered. Mr. Walker's company figures that in terms of production in their plant, they figure that the plant loses twice in production that an employee loses in wages every day that he is off. That means where employees lose $6,000, the company loses $12,000. This must be added to medical expense. He then asked if this situation could be said to be lack of supervision on the part of the foreman.

The Foreman's Responsibility. Even though the above figures were compiled in a plant where they had a safety organization, a poster or bulletin plan of warning, and a safety department, there seems to be evident a great lack somewhere in the responsibility of the foreman. The foreman should be so keenly alive to his problem that he can remind his fellow-workmen everyday of the dangers that are ahead, and to keep the spirit of fair play so alive, that there never is a chance to say that the foreman fell down on his job of responsibility for the other fellow. But after all, the responsibility is one that extends even beyond that of the worker. It is a responsibility that extends into the homes of the wives and children of these men who are working for the company. With that idea sounding a realistic note of the importance of safety, Mr. Walker concluded his talk.

Discussion. Mr. Hoyman asked for questions or discussions on Mr. Walker's paper, and the question was asked as to how you could sell a foreman on safety if he had been with a firm long before the safety idea had taken an important part in the work of the mill. Mr. Walker replied that he doubted if any foreman was a good one if he was not interested in safety, for when the realization is made that an increase in accidents causes a decrease in production, and a decrease in accidents brings an increase in production, if he is not intelligent enough too see this, he certainly is not a good foreman.

Mr. Rhodes of Kimberly-Clark Co., asked if a foreman could be partially sold on safety, and met the reply that such a condition is not possible. The executive sees the balance sheet, and the first thing he sees is production. The black figures must be higher. The foreman may not know that one way he could increase production is to decrease accidents, and make more black figures instead of red on the balance sheet. The process of education for such a foreman must necessarily be a gradual one, but if it doesn't finally meet with success, a new foreman is badly needed.

J. H. Slater of Escanaba brought out the fact that the foreman's situation is wholly an attitude of mind. The old

Pictures of the three silver loving cups donated by the National Safety Council as trophies to winners in Groups A, B and C of the 1927 Paper Industry Safety Contest. The outer cups were awarded to winners in Groups A and B; the cup in the center has not been awarded, as the contest in Group C is not yet finished.

foreman who had his training prior to the time of this safety movement, has very much of a one or two track mind, and looks upon the safety business with a little contempt, and as one of the frills to modern business. But the foreman must move with the times, and change his mind, so as to accept the better things that mean for better production, and can only do this by changing his thinking. In their mill, if a foreman pushes the idea aside after having been reprimanded for the number of accidents, he is let out of the mill and a modern thinking foreman secured in his place for the good of all concerned.

Report of Nominating Committee

At this point the discussion terminated, and Chairman Hoyman called for the chairman of the nominating committee to give their report, and Nat. F. Bartlett, of Hollingsworth & Vose Co., gave the following nominations and appointments in the Paper and Pulp Section for the coming year:

Chairman: W. J. Peacock, Northern Paper Mills, Green Bay, Wis.

Secretary: W. H. Bergstrom, Bergstrom Paper Co., Neenah, Wis.

Vice-Chairman for Canada: A. P. Costigane, Ontario Pulp and Paper Makers' Safety Association, Toronto, Ont., Can.

Vice-Chairman for the South: G. W. Phillips, Champion Fibre Co., Canton, N. C.

Vice-Chairman for the Middlewest: Milan G. Hoyman, Kimberly-Clark Co., Neenah, Wis.

Vice-Chairman for the East: Walter A. Gleason, Hammermill Paper Co., Erie, Pa.

Vice-Chairman for Paper Box Manufacturers: H. C. Sackett Alton Box Board and Paper Co., Alton, Ill.

Engineering Representative: R. M. Altman, Marathon Paper Mills, Rothschild, Wis.

Regional Director for Maine: Alvin F. Record, International Paper Co., Chisholm, Me.

Regional Director for Mass.: Nat. F. Bartlett, Hollingsworth & Vose Co., Boston, Mass.

Regional Director for Mich.: C. E. Torrence, Bryant Paper Co., Kalamazoo, Mich.

Regional Director for Ohio: Kenneth L. Faist, Champion Coated Paper Co., Hamilton, O.

Regional Director for Pa.: R. S. Gaynor, Scott Paper Co., Chester, Pa.

Regional Director for Wisconsin Valley: Franz H. Rosebush, Nekoosa-Edwards Paper Co., Port Edwards, Wis.

Regional Director for Fox River Valley, Wis.: W. F. Ashe, Thilmany Pulp and Paper Co., Kaukluna, Wis.

Committees—

Chairman of the Statistical Committee: F. M. Cushing, Provincial Paper Co., Thorold, Ont., Can.

Chairman of the Poster Committee: Ameil Umberham, Fort Howard Paper Co., Green Bay, Wis.

Chairman of the Membership Committee: J. H. Slater, Escanaba Paper Co., Escanaba, Mich.

Chairman of the Publicity Committee: Walter L. Mead, Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis.

Chairman of the Contest Committee: A. Scott Dowd, Editor, The Paper Industry, Chicago.

Chairman Hoyman, after having asked the secretary to cast a ballott for the nominating committee officers, introduced the next speaker in the person of J. H. Slater, Manager, Escanaba Paper Co., Escanaba, Mich., to speak on selling safety to superintendents. Mr. Slater's entire talk appears elsewhere in this issue, but is briefly summarized below.

Selling Safety to Superintendents

The first point Mr. Slater brought out is that active interest of the management is essential in the selling of safety to superintendents.

The value of safety must be instilled in the minds of the foremen. In other words, the safety idea must come from the smallest man up, as well as from the biggest man down.

An orderly mill is the most efficient and the progressive superintendent is more apt to have this order. His safety duties are everlasting.

Mr. Slater's speech met with such a unanimous response that A. S. Wilson of the American Writing Paper Co., asked if the entire speech could not be presented in some way so that all the superintendents and men engaged in the industry could read Mr. Slater's vital message. We have, therefore, printed his entire paper elsewhere in this issue.

Chairman Hoyman closed the discussion on this paper after Mr. Freeman of the River Raisin Paper Co., Monroe, Mich., had given figures on corrugated department in his plant that accounted for every accident where it is a cut or a lost time accident. In this connection, the point was brought out that many of the mills are using different standards of judging their lost time accidents. Many only count an accident as a lost time one, if the employee is forced to stay at home.

Chairman Hoyman then introduced the last speaker on the program for the second session, as none other than the veteran dean in safety work, John Lundrigan, industrial superintendent of all the International Paper Company's mills, and his talk followed on practical experience in accident prevention.

Practical Experience in Accident Prevention

The salient points of Mr. Lundrigan's talk are summarized briefly, as follows:

The ten year's work of International has clearly demonstrated that accidents are not necessary, and can be reduced to a minimum with a safety organization that works harmoniously.

The responsibility for accidents is placed on the plant manager, and Mr. Lundrigan discussed the mechanics of this situation in full so that the manager's job is clearly outlined, and his work definitely linked up with the home office of the company.

The part that makes International stand out as a cooperating organization is the fact that all accident experiences are exchanged between all managers, and the experience of one is brought to mind before another, and these accidents avoided if possible in the future.

Their principal slogan is good housekeeping which means cleanliness and order. This automatically compels the provision of safe places to work, and requires teaching employees safe and orderly practices, which combined, spell efficiency, safety and health.

With the conclusion of Mr. Lundrigan's talk, Chairman Hoyman closed the meeting, and the session adjourned. Probably all who attended these sessions expressed the unanimous belief that never before had such a group of valuable talks been presented before paper and pulp men. And each carried away the symposium of selling safety to employee, to foreman, to superintendent, and the valuable lessons of experience which the largest paper company in the U. S. and the world brought, with keen appreciation.

WEDNESDAY LUNCHEON

On September 28th at 12:30 o'clock, the Paper and Pulp Section assembled in No. 2 Dining Room on the third floor of the Stevens Hotel to learn the winners of The Paper Industry Safety Contest. Enthusiasm was great. Genialty was foremost. And all in all, the members of the section intermingled in such a friendly fashion that all seemed acquainted and getting together for a real good time.

After all the guests had been seated, Chairman Peacock introduced George E. Burns, safety engineer of the National Safety Council, who announced the names of the winners of the A and B groups, also that owing to six mills in group C being tied for first place, it was impossible yet to declare a winner in this group. This was followed by the introduction of C. E. Pettibone, vice-president for industrial safety of the National Safety Council, who awarded to these group winners the silver loving cups donated by the National Safety Council.

Awarding of the Trophies

Mr. Pettibone addressed his audience with a most inspiring message, and said in part as follows: "Gentlemen, it is a pleasure for me to be here. It is more than that, for a good many years I have watched the accident game and have always been very much interested in the Paper and Pulp Section since

is has joined the National Safety Council. We are doing things with more pep in attendance than a dozen sections.

"The thing that I see here today that is very pleasing is that you have among you actual owners and operators, sitting side by side to learn the story of safety. Safety has gone beyond being something of a useless job to wish on some individual in your organization that hasn't much of anything to do, and he might as well do safety work.

"There is one thing I would like to say a word about. What is your relation to the Executive Committee, and what is their relation to you? Your section can run itself just as it pleases just so it does nothing that interferes with the National Safety Council. But the Executive Committee is your committee, and made up of the people that you elected. They don't know any more about the safety game than you do. Your problems they do not know any more than you do. The growth of the Council is dependent on the growth of the section. And the Paper and Pulp Section is one of the most active groups in the Council.

"The love of contest is prominent in American People, contests in which we can all enter and play fair, for we love to win. Another trait is our love of humanity. Whenever there is a catastrophe, the American people come through. The love of contest and the great good you have done for humanity is expressed in the spirit that you have entered this safety work, and have accomplished things for the people that are in your employ."

LEFT—Wm. J. Peacock, chairman Paper and Pulp Section, National Safety Council. CENTER—Winners of silver loving cups donated by the National Safety Council to Groups A & B of The Paper Industry 1927 Contest. John Lundrigan, industrial superintendent (left), who accepted cup on behalf of the Niagara Falls Mill of the International Paper Co., winner in Group B; Franz Rosebush (right), manager of industrial relations, who accepted cup on behalf of the Nekoosa-Edwards Paper Co., Port Edwards, Wis. winner in Group A. RIGHT—George E. Burns, Safety Engineer, National Safety Council

Representatives of mills in Groups A and B, who accepted Certificates of Merit awarded by The Paper Industry for excellent safety records in the six months' contest ending June 30, 1927. TOP ROW, LEFT TO RIGHT—B. D. Rogers, manager labor bureau, Bird & Sons, Inc., East Walpole, Mass.; Frank Cota, manager, Falls Manufacturing Co., Oconto Falls, Wis.; D. C. Everest, sec'y & gen. mgr., Marathon Paper Mills Co., Rothschild, Wis.; K. L. Faist, safety director, Champion Coated Paper Co., Hamilton, O.; Geo. Milhorn, Mead Fibre Co., Kingsport, Tenn.; Ernest Augustus, safety director, Mead Pulp & Paper Co., Chillicothe, O. BOTTOM ROW, LEFT TO RIGHT—A. S. Wilson, safety inspector, American Writing Paper Co., Holyoke, Mass.; Geo. Roller, emp. & safety mgr., Rhinelander Paper Co., Rhinelander, Wis.; H. R. Lady, emp. mgr., Mead Fibre Co., Kingsport, Tenn.; John Lundrigan, industrial supt., International Paper Co., New York City

Group A Winner. The Group A cup was won by the Nekoosa-Edwards Paper Co., Port Edwards, Wis., and Franz H. Rosebush, head of department of industrial relations ac-

cepted the N. S. C. silver trophy for his company. Mr. Rosebush said in part, as he accepted the cup:

"I cannot refrain from stating at this time that our Nekoosa mill has had but one lost time accident since October, 1926. This year we set out to cut our accidents down to zero, and to date we have done this. I cannot refrain from also saying that we have received a great deal of inspiration from the National Safety Council at these meetings. I feel a responsibility when I come to these meetings, and feel that I must go back home taking something to the company and our men that is really worth while.

"For the number of years I have been coming to these meetings, I have never failed to get the inspiration to take back home. I cannot express the feeling of pride I shall have when I send a wire home tonight that Nekoosa-Edwards has been successful in attaining the goal we have set for ourselves in our safety contest."

Group B Winner. There was no greater surprised man in the audience than John Lundrigan, industrial superintendent of all of the International Paper Co's mills, New York City, when he was told that the Niagara Falls mills of International Paper Company had been the successful winner of the Group B contest. As he stepped up to accept the prize loving cup, donated by the National Safety Council he could hardly talk for surprise, but finally with great thanks for the joy of being able to take the beautiful cup home, said:

"You have pleased me in the most sincere way. I made a trip to the Niagara mill recently, primarily to see what they were doing in safety work. And I promised them faithfully that if they won the cup I would have one of their members here to accept it. But I honestly never expected them to win it, and accordingly there is no representative from their mill here to accept it. It is a real pleasure to feel that one of our mills succeeded in making this record. As I said before, I have a little disappointment because I would very much have liked to have a representative from that mill here to express their appreciation, which I have to give not only for that mill but our whole company.

"I also want to say that I believe our mill winning this trophy will be a great encouragement to all the other mills."

The Major Silver Loving Cup

At this point Chairman Peacock introduced Scott Dowd, and said that he would award the grand prize loving cup, donated by The Paper Industry magazine of Chicago, and talk about the winners in the contest. Mr. Dowd rose and introduced the publisher of The Paper Industry, Edward B. Fritz, and then spoke of the contest as follows:

"I wish now to congratulate the two winners of group cups. It is gratifying indeed to observe their records. That of the Nekoosa-Edward Paper Co., is a long jump better than what they made last year, and the International Paper Company's splendid achievement accompanies their first participation in The Paper Industry contests.

"Fifteen states of this country and three Canadian provinces have been represented in the contest this year, and the numbers entered have increased from 41 mills that took part in 1925 and 72 that were registered last year, to the pleasing total of 119 that started off in January of this year. The 107 mills that stayed through to the finish on June 30th, made a safety record so far below the marks made in previous years that convincing proof is thus shown that safety contests are wonderful and excellent mediums through which to reduce industrial accidents.

"The average severity rate for the Pulp and Paper Section for the past seven years was 2.36 and frequency 42.03. The average severity rate for the six months of this year's contest was .63 and frequency 33.01."

Mr. Dowd said that the records this year were far more gratifying than ever before and while the number of mills which attained perfect scores in the 30-day contest of 1925, were 16 operating without a lost time accident, the average number of mills having perfect scores each month in the 1927 contest was 37.

Rules Governing Contest. Mr. Dowd then told of the grouping of the mills in this year's contest into Groups A, B, and C, and that the rules provided that on the basis of the lowest severity rate, if two or more mills in any group were tied for first place, the contest for all contestants in said group should be extended until the tie was broken. According to this, he repeated that six mills in Group C had thus far tied for first place, having had no accidents, and their severity rate was therefore zero. Under the rules of the contest, this group as a whole must continue until there is one mill that has a lower severity rate than all the others. The awarding of the major cup must therefore be held up pending the result of this C Group contest. Mr. Dowd continued by saying:

"It is unfortunate in many ways that this large handsome silver cup which you see before you cannot be awarded at this time. However, I ask why you should fail to rejoice in the possibility that one of the mills in this open group which does not have a perfect score at present might even yet be declared a winner, and the spread of opportunities to win the major cup becomes wider as the contest lengthens.

"I feel the disappointment rather keenly myself to be on the program to award this grand prize cup, and arrive at this time to find that I am unable to do so. Undaunted, however, The Paper Industry has given me certificates of merit to award to a few of those mills in Groups A and B, whose good records deserve some form of recognition."

Presentation of Certificates. Mr. Dowd then awarded certificates of merit to the following companies, whose records and final rankings will be found on page 1120 of this issue: **Group A**—Mill No. 2, Champion Coated Paper Co., Hamilton, O.; Chillicothe Mill, Mead Pulp and Paper Co., Chillicothe, Ohio; Hudson River Mill, International Paper Co., Palmer, N. Y.; Laurentide Co., Ltd., Grand Mere, Que., Can.; Dill & Collins Co., Philadelphia, Pa.; Marathon Paper Mills, Rothschild, Wis.; **Group B**—East Walpole Mill, Bird and Son, Inc., East Walpole, Mass.; Glen Mill, No. 5, International Paper Co., Berlin, N. H.; Mill No. 1 Strathmore Paper Co., Mittineague, Mass.; Rhinelander Paper Co., Rhinelander, Wis.; Falls Mfg. Co., Oconto Falls, Wis.; Mead Fibre Co., Kingsport, Tenn.; Beebe & Holbrook Mill, American Writing Paper Co., Holyoke, Mass.; Port Huron Sulphite and Paper Co., Port Huron, Mich.

Of those who accepted certificates, probably no one was as surprised as John Lundrigan, who received the opportunity to carry home two certificates of merit for mills, in addition to the group loving cup.

Those who accepted certificates for their companies were: K. L. Faist for Champion Coated Paper Co., Hamilton, O.; Ernest Augustus, Mead Pulp and Paper Co., Chillicothe, O.; John Lundrigan for Hudson River Mill, Palmer, N. Y. also Glen Mill No. 5, Berlin, N. H.; D. C. Everest, for the Marathon Paper Mills, Rothschild, Wis.; B. D. Rogers, Bird & Son, Inc., East Walpole, Mass.; Geo. Roller for Rhinelander Paper Co., Rhinelander, Wis.; H. R. Lady for Mead Fibre Co., Kingsport, Tenn.; Frank Cota, for Falls Mfg. Co., Oconto Falls, Wis.; A. S. Wilson for the American Writing Paper Co., Holyoke, Mass.

Mr. Dowd touched on the next contest, and offered the services of The Paper Industry as a medium for publicity, with the announcement that The Paper Industry would award a loving cup for the 1928 contest.

Contest Achievements

George E. Burns, safety engineer of the National Safety Council, whose untiring work for the prosperity and success of the Pulp and Paper Section has endeared him to all its members, was then called upon to speak of some of the high lights of the 1927 Contest, which he did in a most entertaining manner. A chart which he had made comparing the frequency and severity records of the Pulp and Paper Section for the past seven years was exhibited, and a reproduction of it accompanies this report. Mr. Burns had also prepared the detailed tabulation showing final rankings of all mills entered in the contest, which also appears on page 1120 of this issue, and distributed these at the luncheon.

A number of technicalities that had arisen with respect to qualifications governing admission in the 1927 Contest were brought to light by Mr. Burns and discussed at much length with the result that a clearer understanding should enter into the promotion and carrying on of the next competition.

Why Safety Is Worth While

The Luncheon was honored by the presence of D. C. Everest, president of the American Paper and Pulp Association, New

The Paper Industry Annual Safety Contest

26 Group C Mills Have Perfect Scores in August

AUGUST PERFECT SCORES—GROUP C

PARTICIPANT	NAME OF MILL	LOCATION
Adams Bag Co.	Chagrin	Chagrin Falls, O.
American Writing Paper Co.	Gill	Holyoke, Mass.
American Writing Paper Co.	Holyoke	Holyoke, Mass.
American Writing Paper Co.	Linden	Holyoke, Mass.
American Writing Paper Co.	Mount Tom	Holyoke, Mass.
American Writing Paper Co.	Norman	Holyoke, Mass.
American Writing Paper Co.	Parsons	Holyoke, Mass.
American Writing Paper Co.	Wauregan	Holyoke, Mass.
Bird & Son, Inc.	Phillipsdale	East Walpole, Mass.
Defiance Paper Co.	No. 3	Niagara Falls, N. Y.
Franklin Board & Paper Co.	Franklin	Franklin, O.
The Gardner & Harvey Co.	No. 2	Middletown, O.
International Paper Co.	Riley	Chisholm, Me.
International Paper Co.	Webster No. 9	Orono, Me.
International Paper Co.	Winnipiseogee	Franklin, N. H.
Kimberly-Clark Co.	Neenah	Neenah, Wis.
Lincoln Pulp & Paper Co., Ltd.	Lincoln	Merritton, Ont., Can.
Lincoln Pulp & Paper Co., Ltd.	Lybster	Merritton, Ont., Can.
Marinette & Menominee Paper Co.	Menominee	Menominee, Mich.
Robertson Paper Co.	Montville	Montville, Conn.
Sorg-Oglesby-Smith Paper Co's.	Oglesby	Middletown, O.
Sorg-Oglesby-Smith Paper Co's.	Smith	Middletown, O.
Union Bag & Paper Corp.	Cheboygan	New York, N. Y.
The Upson Co.	Board Mill	Lockport, N. Y.
U. S. Gypsum Co.	Gypsum	Chicago, Ill.
U. S. Gypsum Co.	Lancaster	Chicago, Ill.

The grand silver loving cup prize donated by THE PAPER INDUSTRY to be awarded the mill making the most outstanding safety record in the 1927 contest. The winner has not yet been determined.

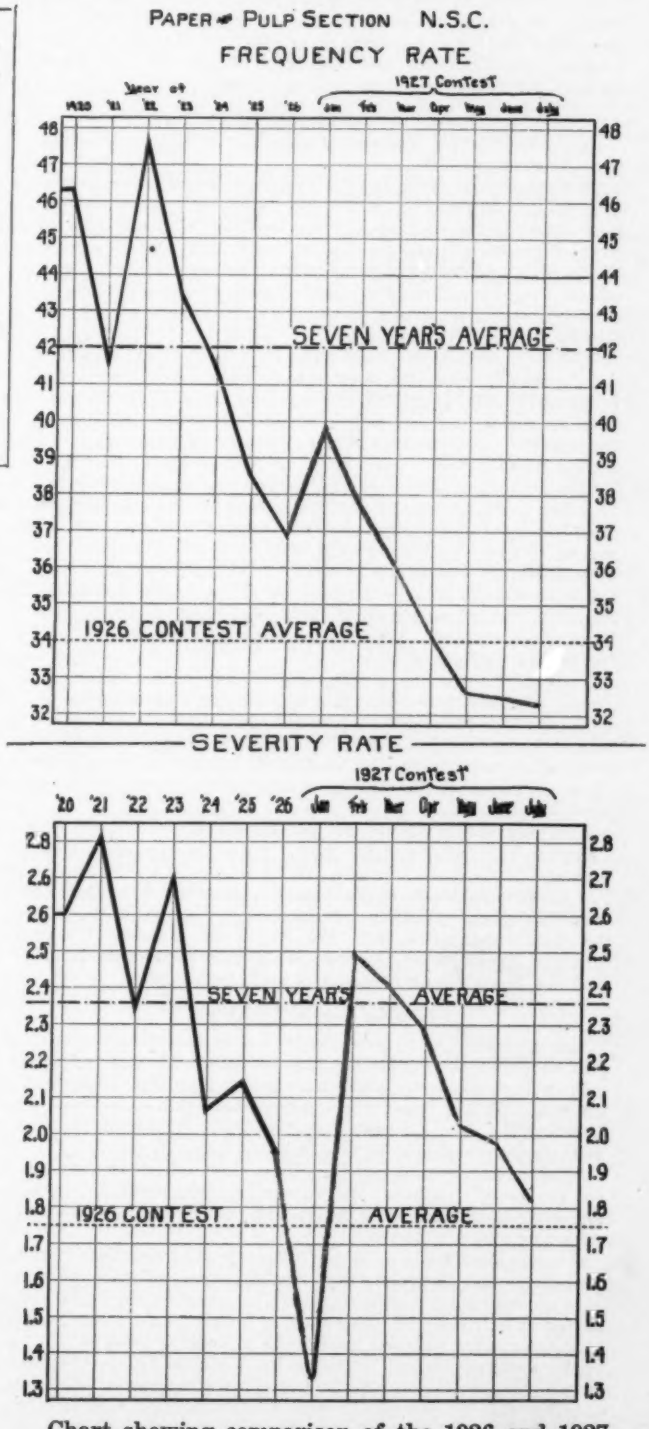


Chart showing comparison of the 1926 and 1927 Paper Industry Contests, and the past seven years' experience of the Paper and Pulp Section of the National Safety Council. Chart computed on 6000 day basis for death.

York City, who gave an inspiring address on "Why Safety is Worth While." His speech appears on another page in this issue.

SPECIAL BUSINESS SESSION

One of the most important meetings of the Paper and Pulp Section from the viewpoint of constructive planning and accomplishment for the coming year was the special business session held Thursday morning, 9:30 A. M., in the Hotel Stevens, with Chairman Peacock presiding.

The Chairman's Message

Chairman Peacock opened this meeting with the following welcoming statement:

"We are to understand that this year's contest is over, and that we are entering upon the first meeting for the contest year 1927-8. The purpose of this meeting is designated in your program as, 'a meeting for intensive study and discussion of the major problems of the section, held especially for new officers, regional directors, and committeemen to acquaint them with their tasks and to adopt a unified program for the coming year.'

"Our objective in the Paper and Pulp Section is to have a section that functions all year 'round. Those of you who have followed the history of this section know that the problem has been to get an activity and a group feeling that will carry through the entire year as much as the spirit featured in the annual meeting.

"We sometimes think of the section's work as consisting of a few posters, newsletters and safe practice pamphlets issued throughout the year, but several feel that we want a section functioning through the year in as many active ways as possible, so that a man coming to this congress can carry out the message he receives into his safety work throughout the year. Group membership activities, esprit de corps, contests, publicity,—all these things make us feel the work of the section during the year.

National Safety Council Service. "We must not forget the service that the National Safety Council can and does give us, especially the small individual mill. Get our individual mills in touch with the National Safety Council, and their facilities. Posters, educational service, statistical compilation is all part of the service that the Council is anxious to give to the members of the Section.

Carrying Home the Spirit of the Congress. "Carry the Congress kick back to each region," urged the Chairman in his message. "We have learned how to do that in this section. Get the inspiration to the last man in the mill in the farthest isolated region." Chairman Peacock then diagramed the coming year's activities into the following divisions: Commissions, Newsletters, Contest, Regional Conferences, Safe Practice Pamphlets and Reports, and Membership.

Coming Year's Activities

Commissions. Chairman Peacock told the group present that this year the paper and Pulp Section will elect research men to fill commissions and study certain problems throughout the year. He also made the announcement that J. J. Plzak of Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis., had been elected as one of these research men.

"This research work and the filling of commissions throughout the year," concluded the Chairman, "will make us bigger men for our contacts with others, and we will get associations with men who are winners."

A suggestion made by one of the prominent members of the section to the chairman that consideration be given to the idea of employing a paid secretary to carry on the work and activities of the section was announced and the request made that the matter be given the benefit of careful thought.

Newsletters. George Burns, of the National Safety Council, urged all members who desired to receive newsletters for the coming year to co-operate with the council by sending one centrally named address, one designated person to receive these, and a group number of newsletters to be sent in one package.

He explained that in this way, 20 or more letters can be sent at once to a central place and to one particular person to be held responsible for their distribution, saving postage, and at the same time eliminating the possibility of loss of the newsletters and later complaints to the management of the mill or the council that the letters are not reaching the right persons.

In connection with the material available for newsletters, Mr. Burns urged all those present to promote the regional conference idea, renew membership activities, and promote committee activities throughout the year. Developing safe practice pamphlets will give something to the section through the medium of the newsletter by announcing it to other members. Food for the newsletters can be provided and developed through the above channels throughout the year.

1928 Contest. A. Scott Dowd, chairman of the Contest Committee, spoke on the coming contest, and asked for suggestions as to any way that several manufacturers now members of the section could be included in the coming year's contest. These included such manufacturers as converters, coating mills, and others.

George Burns suggested having a group designated as N. O. C., "Not Otherwise Classified" but J. H. Slater of Escanaba, Michigan, immediately took the floor and said as follows:

"This is a rather deep question. When you start to consider it, it seems to me that it cannot be hastily decided. When you start differentiating, you open up a real problem. Hazards are less in book and fine paper mills than in newsprint mills. Roofing mills while handling large amounts of material have a comparatively simple handling operation. Converters such as Eaton, Crane and Pike buy by far the greater portion of their material and make the paper from this material. This question can hardly be settled without some serious thought. We might take and divide the industry in half and put into one group the book, tissue and wrapping mills and put into the other group the news mills. However, let us have the question open for debate, gentlemen."

Mr. Rosebush then took the floor, and his expression on the contest situation was as follows: "When we are in a contest, we want to be measured according to the hazards we have. I suggest that hazards be made a factor in the coming contest. In some way we should incorporate into the scheme of this contest a hazard factor that would handicap the mill that does not have these hazards, so they would be at the same level. However, we are in favor of the one cup idea, and would like to see all the mills entered in the contest for one cup as last year."

M. J. Steinman of the Indemnity Insurance Co., of North America then suggested that some adjusting rate, such as that used by steel companies and General Motors Co., in bringing all plants down to one basis, be used in the Paper and Pulp Section.

Mr. Burns promptly took the floor and stated that the only difficulty is determining this so-called equalization factor, and getting some sort of a measurement to bring all the mills down to one level.

Mr. Slater then spoke again and said that one of the determining factors should be whether the concern actually makes paper or not. Just how far we want to allow the concerns to do other things is a question open for decision.

The question then came up as to the desire of mills handicapped with serious hazards having the same incentive to enter a so-called "losing race," but Gleason, of Hammermill, brought out of the fact that his mill, having serious hazards, even though it had never yet won the cup, had been stimulated to greater activity by far since entering safety work, and had reduced accidents immeasurably.

Chairman Peacock then suggested that in the near future we should have some other basis of judging, such as an achievement of first year's results. This met with the approval of the group present.

A. P. Costigane, Ontario Pulp and Paper Makers' Safety Association, Toronto, Ont., Can., then asked if the rules for the 1928 Contest would be submitted to all members. Mr. Dowd, chairman of the Contest Committee said that all members would ultimately have a chance to see the rules for the coming contest and comment upon them.

Developing Safe Practice Pamphlets. Dean Keefer, Chief Engineer for the Industrial Section of the National Safety Council, told of a prepared folder that the council is working on, entitled "Organization of Activities in Industrial Sec-

tions." The exact duties and obligations of each committee and executive committees is told in this folder. He suggested that sub-committees be appointed geographically so that they can get together and have reports circulated among the executive committee, and eventually have these reports printed by the National Safety Council as a safe practice Pamphlet. He emphasized the fact that reports and work done in different regions must be made available to those who do not come to the meetings or the Congress.

Regional Conferences. The Paper and Pulp Section are planning to have the regional conference idea uppermost in the coming year's work. Chairman Peacock inquired of Alvin Record as to the possibilities for the regional conference in Maine this year, and Mr. Record assured him that this year they would attempt their very best to have a conference. They plan to make a canvass of all the mills in Maine and find a central location, and hold the meeting there. Invitations will be extended to non-members as well as members in an effort to make the meeting thoroughly worthwhile.

Chairman Peacock then asked M. G. Hoyman of Kimberly-Clark Co., to report on the results of their regional conferences in the past. Everyone knows that Wisconsin has had signal success in their regional conferences. Mr. Hoyman suggested that more mills and geographical groups make use of the National Safety Council, and get speakers from them to help put the meeting across.

Mr. Gleason of Hammermill Paper Co., then told of their conferences which had been held in conjunction with other organizations, and getting local organizations for sponsors.

Mr. Hoyman in telling the value of regional conferences stressed the fact that men going to regional conferences get so many practical ideas and meet men that they know and exchange ideas of value. He then spoke about the unusual success of the Sheboygan conference this past spring, and urged more meetings to stimulate safety growth in the mills.

Mr. Rosebush brought out the fact that there is to be a conference in Wisconsin Rapids the latter part of October for the paper mills of Wisconsin.

Chairman Peacock concluded the discussion on regional conferences by stating and emphasizing the fact that we must tie up our paper and pulp meetings if possible with some other association meeting going on at the same time, such as the Chamber of Commerce, etc. Then, too, he stated that as soon as a region is large enough we will have a regional director.

He then announced that C. H. O'Connell, International Paper Co., had offered his services for the coming year as regional director of New York. He was unanimously thanked by the section for offering his services, and stated that he would work out his plans for the coming year with Mr. Lundrigan, industrial superintendent for all of International's mills.

Membership Activities. Mr. Burns spoke on the plan of getting new members and bringing those who had cancelled membership back into the fold. He stated that the best plan so far was the one of making so many definite appointments with different mill officials, and a field man from the National Safety Council would come up and keep these appointments. With the introduction provided by the members in bringing this field man to the new official, the National Safety Council man had a very good entree, and a splendid opportunity to talk safety to the official.

Mr. Burns also reminded those present that the National Safety News is publishing several pages each month devoted to exchange ideas, or practical mill helps. He urged the members present to be generous in sending in little kinks and practical suggestions. Many times a little device that has been helping in many ways is operating in your mill, and forgotten because it is no longer new to you, but the other fellow would like to have the idea, so pass it along whenever you get a chance.

Mr. Peacock concluded this discussion by reading the list of memberships that had been received since the Detroit Congress last year, and the list was an encouraging one.

Conclusion. Mr. Dowd concluded the meeting by stating that contest ideas that had been expressed in this meeting would be put into some form of a questionaire and first of all submitted to the vice presidents, who constitute the Contest Committee. The results would then be submitted to the regional directors for their comments. Finally, the adopted rules would be submitted to all members of the section.

Chairman Peacock adjourned the meeting by stating that he felt this session had been one of the most important of the Congress, and hoped that each member would carry back the stimulus of the coming year's activities to each individual of his respective mill.

Registration List

Aetna Life Ins. Co.—E. H. Casavant, Hartford, Conn.; **Alton Box Board & Paper Co.**—C. G. Patterson, H. C. Sackett, Alton, Ill.; **American Writing Paper Co.**—James Murdock, Stanley Skypark, A. S. Wilson, Holyoke, Mass.; **American Paper & Pulp Ass'n**—D. C. Everest, Rothschild, Wis.

Bergstrom Paper Co.—N. H. Bergstrom, Neenah, Wis.; **Bird & Son, Inc.**—F. H. Bird, R. W. Westcott, Chicago, Ill., B. D. Rogers, E. Walpole, Mass.; **Bogalusa Paper Co.**—W. H. Jennings, Bogalusa, La.; **Bryant Paper Co.**—C. E. Torrence, Kalamazoo, Mich.

The Celotex Co.—H. T. Bond, Marrero, La.; **Champion Coated Paper Co.**—K. L. Faist, Hamilton, O.; **Chrysler Corp.**—W. A. Beehill, O. F. Lehman, Detroit, Mich.; **Consolidated Water Power & Paper Co.**—C. R. Boyer, Appleton, Wis., Otto Erdman, J. J. Pizak, G. R. Stearns, Wisconsin Rapids, Wis.

Eastman Kodak Co.—John W. Newton, Rochester, N. Y.; **Employers Mutual Benefit Co.**—A. Kroes, Wausau, Wis.; **Escanaba Paper Co.**—R. W. Haddock, J. H. Slater, Escanaba, Mich.

Fa'ls Mfg. Co.—Hugo Boldt, Frank Cota, Oconto Falls, Wis.; **The Flint Kote Co.**—George Martin, Chicago Heights, Ill., T. R. Bickford, Rutherford, N. J.; **Fort Howard Paper Co.**—Amiel Umberham, Green Bay, Wis.; **French Paper Co.**—E. R. Breeher, Niles Mich.

Robt. Gaylord, Inc.—E. Ahrenhoerster, St. Louis, Mo.; **Great Western Paper Co.**—E. A. Kennedy, Ladysmith, Wis.

Hammermill Paper Co.—W. A. Gleason, Erie, Pa.; **Hollingsworth & Vose Co.**—Nat F. Bartlett, Boston, Mass.; **Hope Nat'l Gas Co.**—Ralph A. Gawthorp, Clarksburg, W. Va.

Indemnity Ins. Co. of North America—M. J. Steinman, Philadelphia, Pa.; **Independence Co.**—I. F. Jones, B. H. Remaly, Philadelphia, Pa.; **Industrial Commission of Wisconsin**—P. A. Russell, Madison, R. D. Scoon, Superior, H. F. Menzel, Oshkosh; **International Paper Co.**—Alvin F. Record, Chisholm, Me., John Lundregan, C. H. O'Connell, New York City.

Kalamazoo Vegetable Parchment Co.—W. E. Walker, Kalamazoo, Mich.; **Kimberly-Clark Co.**—A. G. Briggs, Chas. H. Bujer, A. R. Ellis, M. G. Hoyman, G. Heeslaker, George McElroy, Harry Oehlke, A. W. Redlin, Edw. Zultlow, Neenah, Wis., L. W. Rhodes, J. P. Rucinski, Niagara Falls, N. Y.

Lincoln Pulp & Paper Co.—John L. Leslie, Merritton, Ont., Can.

Mead Fibre Co.—Geo. Milhorn, H. R. Lady, Kingsport, Tenn.; **Mead Pulp & Paper Co.**—Ernest Augustus, L. O. Bonner, Chillicothe, O.; **Michigan Mutual Liability Co.**—E. H. Vallur, Detroit, Mich.; **Mississippi Valley Structural Steel Co.**—J. K. Stafford, Decatur, Ill.

National Safety Council—G. E. Burns, C. E. Pettibone, Chicago, Ill.; **Nekoosa-Edwards Paper Co.**—Franz H. Rosebush, Port Edwards, Wis.; **Northern Paper Mills**—W. J. Peacock, Green Bay, Wis.

Ontario Pulp & Paper Makers Safety Ass'n—A. P. Costigane, Toronto, Ont., Can.

The Paper Industry—A. Scott Dowd, E. B. Fritz, Betty E. Williams, Chicago, Ill.; **Peoples Nat'l Gas Co.**—L. M. Ayers, Pittsburgh, Pa.; **Provincial Paper Ltd.**—F. M. H. Cushing, Thorold, Ont., Can.

Rhinelander Paper Co.—Geo. Roller, Rhinelander, Wis.; **River Raisin Paper Co.**—J. N. Freeman, Monroe, Mich.; **Riverside Fiber Co.**—H. C. Kruegh, Appleton, Wis.

Sorg-Oglesby-Smith Cos.—D. D. Thirkield, Middletown, O.

Thilmany Pulp & Paper Co.—J. B. Delbridge, Kaukauna, Wis.; **Thunder Bay Paper Co.**—Albert Zagar, Port Arthur, Can.; **Titanium Pigment Co.**—F. A. Smith, Carondelet, Mo.; **Tomahawk Kraft Paper Co.**—O. F. Duns, Tomahawk, Wis.

Union Bag & Paper Corp.—Stuart H. Brown, New York City.

Wausau Sulphate Fibre Co—C. M. Green, Mosinee, Wis.; **West Virginia Pulp & Paper Co.**—John H. Crest, Luke, Md.; **Wisconsin Vocational Schools**—H. G. Noyes, Appleton, Wis.

Youngstown Sheet & Tube Co.—W. F. Siemen, Youngstown, O.

Northwestern Supers Hold Fall Conference

About one hundred fifty paper mill representatives attended the fall conference of the Northwestern Division of the American Pulp and Paper Mill Superintendents Association, the News Print Service Bureau, Cost Accountants and Engineers, which took place in Wisconsin Rapids and Port Edwards, Sept. 23 to 25, under the auspices of the Nekoosa-Edwards Paper Company, of Port Edwards, and the Consolidated Water Power and Paper Company, of Wisconsin Rapids.

During the morning periods visitors were taken on tours of inspection of the plants of the Consolidated and the Nepco. Rountable discussions were held at luncheons and dinners, and programs of technical papers were carried out in the afternoons and evenings. The conference ended with an inter-mill golf match at Bull's-Eye Country Club.

Chemical Exposition Interests Papermakers

THE eleventh annual Exposition of Chemical Industries was held at the Grand Central Palace, New York, during the week of Monday, September 26, to Saturday, October 1, with 372 exhibits, many being of special interest to engineers and chemists connected with the plup and paper industry. The character of the exhibits showed a distinct change in chemical development since the early days of the exposition, when more of an attempt was made to feature chemical products rather than chemical aquipment and apparatus as at present. Although synthetic chemical products were fairly numerous, the preponderance of exhibits dealt with processes and equipment and it is here that visiting pulp and paper men found most to interest them. An unusual educational opportunity was offered to students of chemical engineering and chemical practice and advantage was taken of this by a large number of men attending high schools and colleges. The general attendance was unexpectedly large considering that admission was limited to persons interested professionally and to students, the general public not being invited.

There has been a gradual change, as indicated, from an exhibit devoted to chemical products to one of chemical processes and equipment, so that this year's exposition partook more of the nature of a chemical engineering exhibition than a display of manufactured products. Although dyestuffs and by-products of coal and coke were shown in a number of the booths, there was not the abundance and brilliant displays of these that have characterized earlier expositions. As usual, the Technical Association of the Pulp and Paper Industry held a meeting in the conference room of the exposition at which representatives of equipment manufacturers and manufacturers of testing apparatus gave a series of ten-minute addresses in which the operation and results of instruments and apparatus were described. Among the exhibits of special interest to engineers and chemists connected with the industry which were made by firms having dealings more or less direct with our industry, the following are selected for special mention.

ALBERENE STONE COMPANY, 153 West 23d Street, New York—Chemical laboratory equipment adapted to industrial work was shown in the booth of this company. The construction and operation of the Wagner furnace for soda and sulphate black ash reduction was demonstrated to visitors interested in the recovery department of pulp mills. A device for eliminating vibration in balance tables was also exhibited This consisted of a three-inch Alberene Stone top setting on a heavy pipe frame. Resting on the stone were a half-inch felt and a one-inch plate glass. The main exhibit consisted of a center table with Alberene Stone top and reagent shelves. A double drainboard sink with stone strainer represented a complete acid and alkali resistant unit.

BACHMEIER & CO., INC., 438 West 37th Street, New York—Imported and domestic dyestuffs suitable for all dyeing purposes were exhibited. Of particular interest was a new "Baco" product known as Baco Penet, by the use of which it was represented that the user could cut down materially on the quantity of dyestuffs required in dyeing rag or raw stock. John H. Bachmeier, president, and William C. Baur, general salesmanager, were in charge.

BAKELITE CORPORATION, 247 Park Avenue, New York—In a classical wood-panelled setting of the Gothic style of architecture, the Bakelite Corporation made an effective exhibit and one of special interest to the paper industry. The synthetic phenolic resin products named Bakelite have a great range of applications. For the display of many varied products the exhibit of the Bakelite Corporation was divided into seven sections, as Automotive and Transportation; Radio and Musical; Mechanical; Household appliances and Electrical; Chemical; Wiring devices, and Initial materials. An ingenious application of Bakelite in the manufacture of paper is the "roof washer," used in connection with the well known paper machine dryer hood invented by Howard S. Taylor, formerly of Dayton, Ohio, and now of Montreal. The extent to which paper is used in the preparation of Bakelite materials was noted in the exhibition. Paper impregnated with Bakelite is pressed into sheets, tubes, and rods which provide innumerable insulation parts for electrical devices. Hundreds of tons of paper are consumed in this way annually in the production of articles having a wide range of uses from those highly ornamental to those severely industrial.

BAKER PERKINS COMPANY, 250 Park Avenue, New York—There was nothing on exhibition having a special appeal for the paper industry. A heavy duty mixer of fifty-gallon capacity with self-contained direct motor drive served to illustrate a modern tendency in mixing equipment. Laboratory sizes were also shown, one a complete unit mounted on base plate with motor and reduction gear. Photographs and drawings permitted a view of the diversity of uses and modifications to suit varying requirements in the chemical industries. The exhibit was in charge of A. J. Vollrath, vice president, with H. B. Vollrath and Thomas Evans, of the New York sales force, and others from the Chicago and Saginaw departments.

BLAW-KNOX COMPANY, Pittsburgh, Pa.—Forge and hammer welded soda and sulphate digesters were demonstrated by means of large photographs and designs. These digesters are annealed in one piece and are designed to conform with the A. S. M. E. Code and insurance requirements. The structure of the digester being welded in one piece, there are no weak points to yield to strain. Leaching tanks and other apparatus of a similar kind used in pulp manufacture were demonstrated.

BOTFIELD REFRACTORIES COMPANY, Philadelphia—Power plant men connected with pulp and paper mills were interested in the display of Adamant Fire Brick Cement for boiler settings, as well as the use of Adamant-Adachrome mixtures for application on boiler walls which was made by the Botfield Refractories Company. A new Adamant gun for applying the mixtures was demonstrated.

THE BROWN INSTRUMENT COMPANY, Philadelphia—Flow meters, automatic control recorder and visible type multiple recorder were featured in the exhibit of The Brown Instrument Company. The new electric flow meter operates on the self-balancing inductance bridge principle, which makes possible the accurate indication and recording flow change at any distance between the manometer and connected instruments. The operation of the new principle was explained and the instrument demonstrated by representatives of the company in attendance, consisting of R. T. Brown, president; J. P. Goheen, secretary; George W. Keller, salesmanager; M. M. Watkins, New York district manager, and R. F. Roberts, G. W. Goodman, H. L. Pfaffhausen, G. W. Stowe and W. L. Schirmer. Considerable interest was taken in a new visible type multiple record continuous chart recording pyrometer, of which a six-record instrument was exhibited. There was also an improved automatic control continuous chart recorder, as well as a working exhibit of the Brown mechanism for furnace fuel valve or switch control.

CELITE PRODUCTS COMPANY, 11 Broadway, New York—In this booth a panel background showed graphically the rates of flow obtained from a filter assisted by various types of Celite filter aids as compared to filtration without them. Packages were displayed representing products made with the assistance of Filter-Cel, Super-Cel, or actually containing Celite powders. The resistant and heat insulating qualities of Sil-O-Cel brick were shown by means of a small furnace and by a special blow torch exhibit.

CHICAGO CHEMICAL COMPANY, Chicago—At this booth was exhibited a new alkaline coagulant, sodium aluminate. Until recently this chemical was not available in commercial quantities but is now being produced in both solution and dry forms of high purity and in large tonnages. Sodium aluminate is said to be an ideal coagulant for many purposes and as such is finding application in water purification and softening, in clarification and purification of trade wastes and sewage, and for clarification in chemical processes. As a source of active alumina this chemical offers interesting possibilities. The Chicago Chemical Company maintains research and service departments which are prepared to investigate possible uses and to render a continuous service to users.

CHROMIUM CORPORATION OF AMERICA, 120 Broadway, New York—Samples of seamless steel tubing plated inside and outside with chromium intended for use in evaporators for the evaporation of waste sulphite and sulphate liquors were exhibited. A paper on "The Use of Chromium Plate in the Paper Industry" was presented by H. D. McLeese, of the sales department, at the meeting of the Technical Association of the Pulp and Paper Industry. At the plant of the Stevens Point Pulp and Paper Company, Stevens Point, Wis., chromium plated tubes have been used with excellent results in evaporators used in concentrating sulphate black liquor, and it is the intention of the company to employ them on all replacements.

COOPER HEWITT ELECTRIC COMPANY, Hoboken, N. J.—Various apparatus were displayed for testing the sunfastness of dyes, paints, inks, etc., by means of the ultra violet ray. These included the Uviarc test cabinet and laboratory outfit, as well as the Labarc, a source of monochromatic light for the illumination of polariscopes, microscopes and for use in photomicrography. There were also on display a collection of special quartz apparatus, including spectrum tubes and photoelectric cells.

DeLAVAL STEAM TURBINE COMPANY, Trenton, N. J.—De Laval worm gears, turbines and couplings were effectively displayed. Worm gears of the De Laval type can be applied to the paper machine between the motor and the line shaft, or between the turbine and the line shaft to replace mitre gears in floor stands, and between motors and paper machines in sectional drives. A comprehensive line of these worm reduction gears were shown, made for both horizontal and vertical shafts and with either the driving or driven shaft extended on either or both sides. The right angle arrangement often permits of placing the motor out of the way where it will not interfere with aisle space. The various parts of a De Laval centrifugal pump were exhibited, including labyrinth wearing rings which prevent leakage from the discharge to the suction chamber, shaft sleeves for protecting the shaft against corrosive and errosive substances in the water, etc. The parts are made to limit gages on an interchangeable basis so that those subject to wear, such as impellers, shaft sleeves, bearings, etc., can easily be replaced by unskilled men. De Laval flexible couplings were also shown. These couplings are used between driving motors and driven machines of all kinds. Special interest was taken in an exhibit of the De Laval Class C Turbine designed for driving centrifugal pumps or other high speed machinery, or with speed reducing gears for driving generators, fans or pumps, paper machines, etc. The exhibit also included a wheel of a centrifugal compressor of the multistage type. These compressors handle air or gases at any pressure up to 100 lb. per sq. in., and in the largest capacity.

DINGS MAGNETIC SEPARATOR COMPANY, Milwaukee, Wis.—While no machines for the removal of iron from pulp were exhibited, there were in operation at the booth of the Dings Magnetic Separator Company a Magnetic Pulley Type separator and a Type B machine. The first named is of the general design of the magnetic separators which are used in the pulp and paper industry for removing iron from scrap paper, chips, etc. Some of the pulp and paper men who stopped at the booth were disappointed not to find on display the particular type of separator which is used so successfully in the removal of iron both from dry shredded stock and pulp in slush form, such as can be seen in a number of mills. The firm was represented by E. S. Hirschberg, assisted by P. A. Meyer, George H. Walsh and G. I. Thatcher.

THE DORR COMPANY, 247 Park Avenue, New York—Featured at the exhibit of the Dorr Company was the new Dorrco filter. The principle of its operation was illustrated by a small unit dewatering a segregating pulp made up of a mixture of fine and coarse material. This filter is of the vacuum drum type, a feature of its construction being the applying of the filter medium on the inside of the drum. The drum is open at one end and provided with an internal flange to retain the pulp during filtration. This construction takes advantage of the tendency of the solid particles to segregate by gravity against the filter medium instead of away from it. A six-foot diameter Dorr traction thickener and Dorrco suction pump were shown in operation dewatering a dilute chemical pulp and clarifying the solution in which the solids were suspended. The thickened material withdrawn by the pump was returned as feed to the thickener after being mixed with solution in the new Dorrco repulper. An exhibit that attracted some attention was a large mechanically rotated globe of the world on which was shown graphically by means of pins the progress of the company in establishing branch offices, while the location of all Dorr equipment now in operation was shown by pins colored to indicate the material being treated.

THE DURIRON COMPANY, INC., Dayton, Ohio—Duriron pumps, valves, pipe steam jets and other equipment for the handling of alum and bleach solutions which have such a corrosive action on ordinary metals. By the use of blueprints, flow sheets and layouts conveniently arranged for inspection, the different types of equipment were readily demonstrated.

THE EATON-DIKEMAN COMPANY, Lee, Mass.—An impressive display of filter papers of various makes and qualities were exhibited in the booth of the Eaton-Dikeman Company, prominent among which were of course those grades of E & D filter papers used in the industries and in industrial and school laboratories for general chemistry and qualitative analysis. A full line of J. Barcham Green & Son's analytical filter papers was also displayed. This exhibit included folded filter papers, hardened filter papers, extraction thimbles, etc. A number of specialties were shown, including lens paper and an oil filter suitable for filtering crank case oil from automobile or motor boat engines. B. S. Proper of the department of sales, 537 Pearl Street, New York, was in charge of the booth, assisted by A. L. Newton.

THE EMIL GREINER COMPANY, 55 Vandam Street, New York—In addition to hydrometers and thermometers of all types, a large display of oil testing equipment, including an automatically controlled vicosimeter bath, was shown in the booth of The Emil Griener Company. Samples of different types of blown and moulded laboratory ware were displayed, in addition to laboratory equipment such as thermo-regulators.

FILTRATION ENGINEERS, INC., 253 Broadway, New York—Typical of the type of discharge used on the Feinc scraperless filter in the production of dewatered pottery clay as shown in the booth of the Filtration Engineers, Inc., is its operation in the deckering of groundwood, sulphite pulp, clarification of white water and general paper applications, according to Arthur Wright, salesmanager in attendance. A small unit of the high submergence type of Feinc filter, a replica of a nuit now under construction for the Spanish River Pulp and Paper Company's Sault Ste. Marie plant, was on exhibit and attracted the interested attention of pulp and paper men. An exhibit of the Feinc drying system made it easy for the student of drying problems to understand why the Filtration Engineers have been the first to filter continuously and dewater mechanically sewage sludge below 65 per cent moisture and accomplish other hitherto impossible feats in the washing and dewatering of moist substances The entire exhibit was one of great interest to those having to do with the dewatering and deckering of pulps.

FOOTE BROS. GEAR & MACHINE CO., Chicago—On a display panel in the booth of the Foote Bros. Gear & Machine Co. was shown a variety of bronze worm gears, bevels, spurs, internals, micartas and cluster gears. In addition, there were exhibited two types of worm reducers, one a commercial type, used for ordinary commercial purposes, and the other

a HyGrade, high efficiency type of unit, used particularly in the paper industry. These units form part of the equipment of the Alton Box Board Paper Company and the Nekoosa-Edwards Lumber Company. A herringbone type of reducer, embodying the Sykes continuous herringbone gear, also formed part of the exhibit, besides a combination unit showing a reduction of 1500:1. The last named type was a combination of a commercial type worm and a standard spur gear reducer.

GENERAL CERAMICS COMPANY, 50 Church Street, New York—High grade acidproof chemical stoneware in the form of glazed rolls, as well as exhaust fans for acid fumes, formed part of the exhibit of the General Ceramics Company. In addition to the foregoing, other pieces of acidproof apparatus were shown, among them a centrifugal pump.

GENERAL ELECTRIC COMPANY, Schenectady, N. Y.—The General Electric Company exhibited various fan-cooled enclosed motors and made a display of fused quartz and special laboratory products, but the center of attraction at their booth was a welding outfit by which hitherto unweldable metals can be melted and fused without any trace of oxidation. This is a process made possible by an atomic hydrogen welding machine, the result of a research conducted by Dr. Irving Langmuir, of the General Electric laboratory. The method utilizes the passage of a stream of hydrogen through the arc between two electrodes. The heat of the arc breaks up the hydrogen molecules into atoms which recombine again a short distance beyond the arc into molecules of the gas. An enormous amount of heat is thus obtained with temperatures much higher than those available with the usual welding methods. The mechanical and electrical design has been improved since the machine was announced by the research laboratory about a year ago.

GENERAL PLASTICS, INC., North Tonawanda, N. Y.—Durez molding compounds and insulating varnishes were exhibited by General Plastics. A phenolic condensation product, molded Durez is made in a variety of colors and color combinations which have a wide variety of practical applications. Durez insulating varnish is used to impregnate paper in the manufacture of sheet stock and panels for radio and other similar parts, besides tool handles and art novelties. The substance appears to have unlimited applications and many interesting examples of its use were exhibited.

HARDINGE COMPANY, York, Pa.—Of special interest to the paper industry were the exhibits made by the Hardinge Company. Working models of the Hardinge conical mill and reverse current air classifier, the Ruggles-Coles dryer and the Hardinge clarifier were shown, as well as a scene-in-action picture illustrating the principle of operation of the conical mill and air classifier. Photographs of the conical rod mill were exhibited. The rod mill is a large cylinder supported on hollow trunnions, both feed and discharge heads being of conical construction, for which special advantages are claimed. Chief of these advantages is the lessened risk of rods shifting and getting caught in the trunnions as is the case with a vertical-ended rod mill. It is said that when used as a beater in paper mills long fibers are maintained and there is less power used with lower maintenance costs than with other methods. Both the rod mill and clarifier have been described in previous issues of THE PAPER INDUSTRY.

IOWA STATE COLLEGE, Ames, Iowa—An interesting display of artificial lumber, paper, building blocks, artificial silk and other products manufactured from waste cornstalks was made by Dr. O. R. Sweeney, professor of industrial chemistry at Iowa State College. The object of the display was to show how waste agricultural products could be utilized. Doctor Sweeney is one of the original chemists who have successfully produced alpha-cellulose from cornstalk pulp. Artificial lumber is made simply by beating the stalks and leaves of corn to a coarse pulp and adding an antiseptic to prevent possible fermentation. It forms a durable substitute for hardwoods. The Chemical Engineering Department of the State University of Iowa, appears to be thoroughly sold on the advantages of cornstalks as a substitute for wood in the manufacture of pulps for all purposes and Doctor Sweeney, who is at the head of the department, is an able advocate of efforts to develop the latent wealth of the cornplant in this way.

IRVING IRON WORKS COMPANY, Long Island City, New York—The Irving unified system of reinforcement and surface armor for concrete bridge floors form part of the exhibit of the Irving Iron Works Company, which also made a display of Irving Subway Open Steel ventilating flooring, type "M," as well as modifications of this type and the Irving Vizabledg Safsteps.

THE JESSUP & MOORE PAPER COMPANY, Philadelphia—This company made a demonstration of the Buck-McRae electrolytic cell which was of interest to pulp manufacturers who make their own bleach. Some of the advantages of this cell include economy of floor space, reduction of graphite consumption, elimination of leakage and low power consumption.

KILSOOT CHEMICAL COMPANY, 530 West 58th Street, New York—A combination of chemicals in powder form which is marketed under the name of Kilsoot was demonstrated by the Kilsoot Chemical Company. Kilsoot is said to provide a means of removing soot and carbon deposits from boilers, smoke passages and stacks, the powder being scattered over the hot fire to create a gas which volatilizes the carbon deposits and then consumes them without leaving a residue. The use of Kilsoot is endorsed by fire prevention bureaus and fire chiefs as a protection against danger of chimney fire.

LA MOTTE CHEMICAL PRODUCTS COMPANY, Baltimore—Hydrogen ion control methods for detecting and controlling acidity and alkalinity in pulp and paper manufacture are being more generally adopted by the paper industry, in consequence of savings affected and improvements in quality of product that result. By means of hydrogen ion control not only are large amounts of chemicals saved but, what is often of even greater importance, the manufacturer is enabled to turn out a good product of uniform quality at all times. The La Motte Chemical Products Company exhibited a full line of materials and equipment for hydrogen ion control, including the Roulette and Block comparators, both of which are used extensively in pulp and paper work. Another exhibit of special interest to pulp and paper manufacturers was the Enslow chlorine comparator for determining free or residual chlorine. The method and application were developed in co-operation with L. H. Enslow, of the Chlorine Institute. Color or turbidity and other factors of error in the determination of chlorine are said to be eliminated by the use of the Enslow comparator.

LAUGHLIN FILTER CORPORATION, 120 Broadway, New York—The chief exhibit of this company consisted of the Laughlin Continuous Centrifuge, a machine for filtering fibrous materials without loss of short fibers. It has also other applications as in the extraction of black liquor from soda and sulphate pulp and washing pulp in one operation; extraction of bleach residues and washing the pulp; washing ink from deinked paper stock and dewatering. The Laughlin Continuous Centrifuge consists of a bowl with a perforated shell and a fine inner screen mounted on a sleeve concentric with a hollow horizontal shaft. The bowl is rotated at a speed sufficient to settle the solids on the screen and throw the liquid through the perforations, while a screw impeller operates within the bowl to move the solids to discharge openings at the opposite end. A pipe connection carries away the liquid, the dewatered pulp being thrown out and collected in a stationary chamber surrounding the bowl. The power requirements are comparatively low, ranging from 8 hp. to 10 hp.

THE MATHIESON ALKALI WORKS, 250 Park Avenue, New York—As usual The Mathieson Alkali Works provided one of the most attractive exhibits at the Chemical Exposition, though there was nothing of new or special interest shown, because of the staple or long established character of most of the products. On a rack was exhibited the various cylinders used as containers for liquid chlorine and anhydrous ammonia. Samples of the various products, together with literature describing their use in the industries based on chemistry, were available. A model of the Mathieson multi-unit tankcar which is now so familiar to all users of liquified chlorine formed an interesting feature of the exhibit. Visitors were received by R. J. Quinn, assistant manager of sales; H. Martin and J. H. MacMahon, technical representatives,

and E. M. DeBaun, T. Gillespie, J. D. Williamson, and J. R. Schmertz, advertising manager.

THE MINER LABORATORIES, Chicago—The many uses and applications of furfural were exhibited and specimens of the actual materials shown in the space occupied by The Miner Laboratories. A flowsheet formed a background to the booth on which was shown the derivations of furfural and its compounds and derivatives from the hulls of oats. Of special interest was a large assortment of samples showing the various commercial applications for furfural.

MORSE CHAIN COMPANY, Ithaca, N. Y.—An effective demonstration of the Morse Silent Chain Drives for transmitting both small and large powers was made at this booth to which visitors were attracted by the exhibition of a large old-time grandfather's clock in motion. On the face of the clock one of the links of a chain moved synchronously with the pendulum, the whole being designed to represent the well known trademark of Morse Silent Chains. The exhibit was successful in suggesting the continuous, reliable operation of these drives of the Morse Silent Chain Drives on all types of machinery.

MIXING EQUIPMENT COMPANY, INC., 229 East 38th Street, New York—This exhibit consisted of Lightnin portable mixers consisting of propellers attached to telescropic shafts capable of adjustment to tanks of various depths and driven by electricity, motors being supplied for any voltage, cycle and phase. The propellers are supplied in any material desired, as monel metal, nickel, bronze, aluminum steel or cast iron; lead or rubber covered shafts are supplied at additional cost. Lightnin portable mixers can be readily mounted on any container to equip it as a complete mixing unit, the clamps being adjustable to any angle; the propellers are generally arranged at a downward ablique angle. Some models are equipped with special beaters which revolve at 383 r. p. m., where a whipping action is desired. Among pulp and paper concerns that are users of the Lightnin portable mixer may be noted the A. P. W. Paper Company, Crane Paper Company, Holyoke Card and Paper Company, Mead Pulp and Paper Company, Niagara Paper Mills, West Virginia Pulp and Paper Company.

NEWARK WIRE CLOTH COMPANY, Newark, N. J.—Metallic filter cloths and testing sieves were on display in the booth of the Newark Wire Cloth Company. A special weave employed in the manufacture of Newark metallic filter cloths, known as the spiral overlap weave, makes it possible to lay 500 wires in contact with one another in an inch of space; whereas, where they are laid parallel only 250 wires of the same diameter can be placed in the same space. By doubling the number of wires strength and durability are increased with a reduction in the size of mesh. When made of monel metal or pure nickel, metallic filter cloths are alkali proof and resist the corrosive action of sulphuric acid in solutions of 7 to 10 per cent strength. Samples of wire cloth of various malleable metals were shown. Literature was distributed referring to the foregoing and to a jacketed metallic filter cloth for use with flush plate and frame presses which withstand ordinary filtering and washing pressures.

NORWOOD ENGINEERING COMPANY, Florence, Mass.—A display of photographs and designs of Norwood water filters as installed in various paper plants was made at this booth.

NORTON COMPANY, Worcester, Mass.—Practical demonstrations of filtering and aeration were given by the Refractories Division of Norton Company. A filter tank with a filter area of four square feet was used and the principle of aeration demonstrated in a small glass tank, with a standard 12 x 12 x 1 in. plate providing the aerating surface. The Norton porous plates were featured in the display. These are composed of electrically fused alumina grains bonded together in a kiln with an aluminous glass, which makes the plate resistant to corrosive liquors. Norton porous plates are widely used by sanitary engineers for the treatment of sewage by the activated sludge process. They are made in three standard grades for chemical, metallurgical and electrochemical filtering operations, and for gas and air diffusion. Curved sections for lining centrifugal washers and for covering and lining filter wheels and drums can be supplied. These porous plates can be used for gas absorption; thus, the flow of chlorine gas can be so regulated through a porous plate that by the time the gas reaches the top of the absorbing liquor, as for example milk of lime, it will all be absorbed with no loss of gas and without objectionable odor.

OLIVER CONTINUOUS FILTER COMPANY, San Francisco—In continuous operation at the booth of the Oliver Continuous Filter Company was a 1′ diameter x 1′ face Oliver Continuous Filter in connection with a model Oliver Borden Tube Thickener, handling a various list of materials, such as calcium carbonate, calcium sulphate, lamp black and flue dust. The Oliver Borden Tube Thickener clarifies large volumes of liquor, 10 to 200 gallons per minute per unit, containing from 0.01 per cent to 10 per cent solids, and also for thickening prior to filtration. It is a simple outfit, which may be placed in any standard thickener or settling tank. The Olivite acid resisting centrifugal pump was also shown.

PARKS-CRAMER COMPANY, Boston, Mass.—The Merrill process system of industrial heating by oil circulation was featured by Parks-Cramer Company, together with a few specialties used in connection therewith.

THE PFAUDLER CO., Rochester, N. Y.—A new interchangeable series of acid-resisting process equipment was exhibited by The Pfaudler Company, four standard models being used, many of which are interchangeable.

PHILADELPHIA QUARTZ COMPANY, Philadelphia—The booth of the Philadelphia Quartz Company on the mezzanine floor to the right of the elevators was a meeting place for all interested in silicates of soda. Liquid, solid and powdered silicates were displayed. An attractive poster, The Silicate of Soda Tree, charted the uses of silicates. Doucil, the water softening material, was also displayed conspicuously.

PROCTOR & SCHWARTZ, INC., Philadelphia—Proctor dryers, used for drying all materials handled on trays were shown here. Machines of the tray-on-shelf type and the tray-on-truck type were exhibited as representative of the Proctor line of drying machines. Dryers of the tray-on-truck type are used for drying binders board, leather board and other pulp boards, so that the exhibit had special interest for representatives of the paper industry. A variety of other types of dryers were shown in photographs, including one for drying wood chips for sulphite cooking.

THE PYROMETER INSTRUMENT COMPANY, 74 Reade Street, New York—The Pyro Radiation pyrometer for temperatures exceeding 1000° F. was the feature of this exhibit. By pointing the instrument at the furnace and pressing a button, a pointer is deflected to the correct temperature reading on the scale. This pyrometer is used like a telescope and can be handled by an ordinary workman. It measures seven inches long and four and three-eighth inches in diameter and is mounted in a carrying case with shoulder strap like a binocular glass, but having a single eyepiece only.

QUIGLEY FURNACE SPECIALTIES COMPANY, 26 Cortlandt Street, New York—A number of acid and alkali resisting cements and solutions were exhibited by the Quigley Furnace Specialties Company. Quigley acid proof cement is a ready-to-use mortar and protective coating capable of resisting strong, weak or mixed solutions of many corrosive acids and gases. Triple-A solutions resemble paints, being applied as a permanent protective coating for iron, concrete, stone and brick surfaces. Hytempite is a high temperature cement which sets at normal temperatures, its strength being increased by heat up to temperatures at which fire brick loses strength and softens. It is used for furnace and boiler settings and repairs, as well as for lining melting furnaces, ladles, etc.

SHEPARD ELECTRIC CRANE & HOIST COMPANY, Montour Falls, N. Y.—An interesting exhibition of the Shepard crane attracted attention. This exhibit adjoined the booth of THE PAPER INDUSTRY and many visitors stopped to see the operation of the hoist, equipped with Shepard "Balanced" Drive. The walls of the booth were adorned with panels illustrating the operation of cranes and hoists in paper mills.

SUNLIKE ILLUMINATING COMPANY, 475 Fifth Avenue, New York—A display of various sizes and finishes of Sunlike lamps for matching and shading the color of paper formed the

cell include economy of floor space, reduction of graphite exhibit of this company. The Sunlike lamp uses for the source of light the ordinary Mazda C2 bulb under the patent Gamain by which the spectral quality of daylight is reproduced with great accuracy, and this without the use of the heavy blue glass filter which screens a great deal of light. The construction of the lamp is based on the principle of multiple correction of quality of light, first by means of increased voltage, next by means of cobalt oxide mirrors placed at angles to each other, and at various angles to the vertical The lighting effect is finally blended and diffused through a graphite glass, inside-frosted globe.

SWENSON EVAPORATOR COMPANY, Harvey, Ill.—Included with the exhibit of black liquor evaporators, pulp washing systems, etc., displayed by the Swenson Evaporator Company was a complete set of samples of strong and weak filtrates, green liquor, lime sludge and washed filter cake taken in connection with the most recent filter installation of W. D. Mount, of Lynchburg, Va., inventor of the process of continuous causticization with lime recovery. As representing what is actually being done in one of the southern kraft mills the set of samples referred to was of more than ordinary interest. The Mount line of recovery equipment is now handled by Swenson.

TEXAS GULF SULPHUR COMPANY, 41 East 42d Street, New York—This exhibit consisted of a moving design of a sulphur mine and its operation. Every step in the mining of sulphur by the Frasch process, from the heating of the water to its action underground, and the forcing of the melted sulphur to the surface into collecting sumps, was shown. From the sumps the molten sulphur is pumped into big vats where it is cooled and then broken down and loaded into cars for shipment.

THE W. S. TYLER COMPANY, Cleveland, Ohio—A complete line of woven wire screens including a new type weave for coarse screens known as the "Press-Sock" crimp which makes a smooth flat screen with the wires firmly locked in place, was exhibited by this company. The Ro-Tap testing sieve shaker for making sieve analysis tests. The Hummer Electric Screen is a screening machine which has had a wide acceptance in many industries and should find a number of profitable applications in the paper industry.

UEHLING INSTRUMENT COMPANY, Paterson, N. J.—Among the instruments and apparatus exhibited in this booth an electrically operated Apex CO_2 recorder took chief place. With this type of instrument no steam, water, or drain lines are required. The use of delicate galvanometers and batteries is also unnecessary. Also featured was a new electrically operated automatic control which was viewed with interest by engineers and plant owners. In attendance at the exhibit were F. F. Uehling, C. C. Phelps, C. J. Schmid, F. D. Bogia and P. J. Riccobene.

UNITED FILTERS CORPORATION, Hazleton, Pa.—Working models of different types of filters and thickeners were exhibited together with motion pictures of filters in operation in paper mills. A complete operating model, an exact duplicate of the American filter which is widely used in the paper industry, was on display. This unit is designed for test work at various pulp and paper mills after the exposition closes. Five working models of filters and thickeners were to be seen in this booth, as follows: American filter (pulp type), Kelly pressure filter, Sweetland pressure filter, Sweetland cantilever filter, Sweetland thickener. The American filter is used variously as a decker or thickener, save-all, bleach washer, and as a combination unit handling two or more of the steps mentioned. The primary function of the American filter is that of a save-all where it operates very efficiently.

UNITED STATES RUBBER COMPANY, 1790 Broadway, New York—Rubber tank linings and hard rubber equipment as used in large-scale chemical operations were featured by the United States Rubber Company, a full line of such equipment being displayed, as well as hard rubber pipes and fittings.

THE U. S. STONEWARE COMPANY, Akron, Ohio—A new type of digester lining tile which was exhibited in the booth of The U. S. Stoneware Company, attracted the interested attention of pulp and paper mill visitors, who also inspected samples of piping having a smooth liquid glaze on the inside, the outside being left rough and unglazed. In addition to these there was shown a wide assortment of acid proof chemical stoneware. In charge of the exhibit were F. S. Wills, president and S. H. Farkas, salesmanager.

UNITED TESTING COMPANY, INC., 316 Hudson Street, New York—General analyses for manufacturers were stressed by the display made here which included reports on fuels and papermaking supplies, as well as finished products. Among the equipment shown were Schopper and Mullen testing machines.

VALLEZ ROTARY FILTERS COMPANY, Grand Central Palace, New York—Varying in sizes from laboratory models to the largest industrial size, a complete line of Vallez rotary filters were exhibited in this booth. Among them was a scale model of the filter which has been recently used successfully in the pulp and paper industry for recovering black liquor caustic liquor, white water, etc. Visitors were received by Hy. A. Vallez, president; H. S. Kent, W. L. Chapman and A. H. Vallez.

YALE & TOWNE MANUFACTURING COMPANY, Stamford, Conn.—Electrical industrial trucks formed the main feature of the Yale & Towne Manufacturing Company's display. Trucks of the elevating platform type and crane truck type were shown, as well as a complete exhibit of overhead carrying systems, consisting of hand and electric chain hoists and trolleys. One or other of these types of equipment are used with satisfaction in paper mills and some mills employ both.

ZAREMBA COMPANY, Buffalo, N. Y.—An exhibit of photographs comprised the display of the Zaremba Company which has found this method of exhibiting to be more satisfactory than attempting to show actual machinery, because of the extremely large size of the evaporators and other chemical apparatus made by this company. The photographs showed thirty or forty Zaremba installations and were examined with much interest. They showed the application of evaporators to a great many industries such as pulp mills, electrolytic chlorine and caustic plants, wood distillation plants, salt manufacture, glucose manufacture, caustic soda recovery plants, etc.

Wisconsin Engineer Takes up Work on Stream Purification Problem in Paper Industry

On November 1, C. M. Baker, who for eight years has been State Sanitary Engineer with the Wisconsin State Board of Health, will take up work on the stream purification problem of the paper industry under the direction of the American Paper and Pulp Association and its National Committee on Stream Purification.

Mr. Baker was born in Ithaca, N. Y., in 1882. From 1914 to 1918 he was assistant sanitary engineer with the New York State Board of Health and had supervision and control of public water supplies, waste disposal, sewage treatment, etc. In 1919 he accepted the position of State Sanitary Engineer with the Wisconsin State Board of Health which was completely reorganized by him and special attention given to the problem of waste disposal and stream pollution in the State. Particular consideration was given to the handling of paper mill waste.

The very important work of stream purification in the industry has been delayed by the American Paper and Pulp Association as it has been a problem to find a man of the right training and experience. The association is confident that a man of Mr. Baker's training and experience is the best possible type of an engineer to work with the industry.

It is expected there will be a meeting of the National Committee on Stream Purification in Chicago in November, at which time the program for Mr. Baker's work for the first year will be laid out.

Charles E. Shearer, for several years advertising manager for Industrial Works, Bay City, Mich., has resigned, effective October 20th. No announcement has yet been made as to his future connection.

T. A. P. P. I. Meeting at Exposition

IN connection with the Exposition of the Chemical Industries, at Grand Central Palace, New York, there was held on Wednesday, September 28, a meeting of the Technical Association of the Pulp and Paper Industry at which the representatives of various manufacturers of equipment had an opportunity to explain the operation and describe the performances of different machinery, instruments and apparatus used in pulp and paper manufacturing processes.

The conference room where the meeting was held was a noisy place, and it was difficult for some of the speakers to make themselves heard. There was no restriction on admission to the room, many casual visitors to the exposition being there in addition to a fair sprinkling of pulp and paper mill engineers and chemists.

A Visitor from London

E. C. Tucker, of the Chemical Paper Manufacturing Company, Holyoke, who is president of T. A. P. P. I., was chairman of the meeting and William G. MacNaughton, secretary-treasurer, was also in attendance. An interested observer of the proceedings was James d'A. Clark, of London, Eng., who is paying a second visit to the United States. Mr. Clark is well and favorably known as the author of a valuable series of articles on the progress of papermaking in the United States which will shortly be published in book form by the Technical Section of the British Association of Papermakers. To a representative of THE PAPER INDUSTRY he expressed great admiration for the exhibits made at the Chemical Exposition and he also spoke favorably of the proceedings of the conference and of the value of the papers presented, all of which gave him a comprehensive understanding of developments in American inventions for the improved production of pulp and paper.

The American Disk Filter

"Continuous Vacuum Filters" was the title of the first paper presented, the author being M. W. Davis, of the United Filters Corporation, Hazleton, Pa. After a description of the important points of the pulp type American filter on which the United Filters Corporation holds patents, Mr. Davis showed moving pictures of the filter in operation.

Although there are several types of drum filters, the American is the only type of vacuum disk filter. The difference, between drum filters and disk filters lies in their mechanical construction, as each functions under substantially similar principles of operation. In filtering or dewatering the slush pulp or white water, the fiber is deposited on the wire cloth medium (usually 60 mesh) and the clear effluent drained from the pulp under a comparatively high vacuum. As the disks rotate a small amount of fiber passes through the filter until a pulp mat has been formed on the wire cloth. During the rest of the filtration cycle all the water is drawn through this pulp mat, and as a result the composite filtrate has a very low fiber content.

As illustrating its effectiveness, he instanced the thickening of groundwood. The ordinary decker gives a retention of fiber of approximately 80 to 85 per cent, whereas with a vacuum filter of the American disk type, a retention of around 98 per cent is obtained.

Acts as a Save-All—In addition to its use in replacing deckers for thickening groundwood, or chemical pulp, it forms an efficient save-all, and so reduces white water fiber losses to a minimum. With its use, a substantial economy of floor space is possible. It was mentioned that four large Canadian newsprint mills—Manitoba Paper Company, Ste. Anne Paper Company, Anglo-Canadian Pulp and Paper Mills and Spruce Falls Power & Paper Company—had adopted American filters for thickening both groundwood and sulphite.

When using American filters for the recovery of white water fibers, it was necessary, Mr. Davis said, to add a small portion of longer fibered stock to the white water handled in order to form the filtering mat required to produce a clear filter effluent. This is afterward returned to the system together with the recovered white water fiber.

Applications of the Filter—There is a higher recovery with continuous vacuum filters than with ordinary save-alls and they occupy less space. Owing to the small amount of pulp contained in the filter vat, it is easier to change orders on the machine without much loss of fiber. The clear filter effluent can be used for paper machine showers without any risk of plugging them.

In addition to the applications mentioned, American filters can be used as washers for chemical pulp and bleached stock, as well as for lime sludge.

As to savings effected, it was estimated that fiber recovered amounted to about 350 tons a day. This at $20 a ton meant an annual net saving to the industry of more than $2,000,000.

Principles of Oliver Operation

The operation of the Oliver Continuous Filter was then described by Charles Fuhrmeister, Jr. Drum washers of the vacuum type represented by the Oliver filter operate on the principle of displacement, not by dilution, and stock is dried to relatively high density before the wash is applied. Owing to the rapidity with which the sheet forms under vacuum, it acts as the filtering medium and retains all solids contained in the feed mixture. Vacuum drum cast-iron washers equipped with woven monel wire covers are used for washing soda in many mills. Instances of conditions and results were cited.

Special Uses for Olivers—In an account of operations in the washing of special pulps, mention was made of the utility of the Oliver Continuous Filter in the treatment of sulphite for manufacture of rayon, straw for book paper, bagasse and cornstalks for pulp manufacture. These various products necessitate the use of different chemical reagents, but the same stock can be treated in rotation. Frequently, the reagent must be completely recovered at high concentration for re-use to render the process commercially profitable. Performance data on the methods employed in special pulp manufacture and treatment could not be given because the operations had to be held confidential, but it was stated that there was no washing duty in pulpmaking where the vacuum drum washers would fail to produce the desired results.

Vallez Filters First Used in Sugar Refineries

A new form of rotary filter was described by A. H. Vallez, who read a paper on "Vallez Rotary Filters in the Paper and Pulp Industry." After a preliminary discussion of the use of paper pulp as a filtering medium in sugar refineries by a method which consisted of spreading a thick layer of pulp by hand over the false bottoms of a number of trays mounted in frame work, one above the other, through which the liquid to be filtered was allowed to percolate and then drawn off from the false bottoms, he gave an account of the experimental work which led to a re-designing of the equipment to its present form.

Construction of the Vallez Filter—The Vallez rotary filter consists essentially of a filtering element mounted in a pressure shell. The shell, of cast iron, is cylindrical in shape and divided on its horizontal center line to permit of being opened for the attachment of the filtering element. It is provided with inlet and outlet openings, inspection doors and a mechanism for rotating the filtering element, which consists of a number of circular leaves or disks. The interior of each leaf connects through openings with the hollow shaft, which acts as a common header for the filtrate from all of the filter leaves. Each flat side of the filter leaf is covered with a wire cloth.

In sugar refinery work, a quantity of pulp sufficient to make a layer of the required thickness over the entire filtering surface is mixed with a volume of the liquid to be filtered. This mixture is then circulated through the filter until all the pulp has been deposited on the filter leaves. The remainder of the liquid is then pumped through the filter, is clarified

in passing through the pulp layers, and is sent on to the next step in the sugar refining process.

Application as Pulp Thickener—The application of the foregoing process to the dewatering of pulp is obvious. In the sugar industry, pulp was being added to the liquor so that when it was kept back it would form a mat on the filter screens through which additional liquor was passed. In pulp dewatering and washing, all that is required is to pass the liquor through the filter; during the first few minutes of operation, the screens will separate from the liquor a sufficient amount of fiber to form a sheet over the entire filtering surface. From then on, all the liquor passing through the filter must pass through this sheet, which of course, increases in thickness with the operation. The separation of fiber is nearly 100 per cent, and because the filtering element is enclosed in a pressure shell, large quantities of liquid can be forced through relatively small filtering surfaces. At intervals, the pulp is discharged from the filter and the operation started over again.

The Vallez filter is said to be particularly well adapted for the recovery of small amounts of stock from large volumes of liquids, as for instance in the filtration of black liquor in a soda or sulphate mill before passing it on to the evaporators. Operating on the white water from a soda pulp mill and on the water from the stock thickeners, the reclamation of stock amounted to 4,000 lb. a day. The filtered water was re-used, as it contained no fibers or other solid matter that would tend to clog up sprays or introduce blemishes or specks in the finished product.

Other Uses for the Vallez—Mr. Vallez instanced other uses for the Vallez filter. Thus in a soda mill, the caustic liquor is passed through a Vallez before going to the digesters in order to deliver a liquor absolutely clean and free from solid matter. The green liquor invariably contains lime which has not been recovered in the settling tanks and furthermore, in the various steps of caustic recovery it is apt to pick up dark-colored solid matter, such as black ash, pipe scale, etc., all of which are kept back on the filter leaves.

The Vallez filter has also found use in the purification of manufacturing water. If a filter is operated for a time as a save-all on white water, the leaves acquire a coating of stock. Water from a turbid stream can be pumped through the filter and clarified by filtration through the layer of recovered fibers, which would then have to be discarded or used in an inferior product.

Testing the Reactions of Stock

The well known and widely used colormetric method of determining the alkalinity or acidity of stock introduced by the La Motte Chemical Products Company, of Baltimore, was the subject of a lecture by Dr. W. A. Taylor, president of the company. He explained the meaning of the term pH value and gave a diagrammatic representation of the Sorrensen scale in comparison with the Fahrenheit scale of temperatures, in order to make the symbols used more readily understood. He then showed how alkaline and acid solutions react with various reagents in the La Motte system to form tints indicative of their pH value, exhibiting a large wall chart to elucidate the system employed.

Principles of Evaporation

The firm of Ernest Scott & Co., Fall River, Mass., sent H. Austin to the meeting to discuss principles of evaporation in chemical pulp mills, which he did in a very thorough manner according to well established principles, using a projectoscope to present illustrations of evaporators of the Ernest Scott type.

Chromium Plating Against Corrosion

The application of chromium plate in the pulp and paper industry was the subject of a paper by H. D. McLeese, of the sales department of the Chromium Corporation of America. He introduced the subject with an account of the occurrence of chromium in nature, its properties and the development of chromium plating. Chromium occurs in combination with iron in the mineral chromite, an ore that is mined in Cuba, India, Japan, New Caledonia, Rhodesia, Russia and the Union of South Africa. Chromium can be produced with a high polish that is not affected by ammonia, sulphur, hydrogen sulphide, dilute alkalis, salt water atmosphere or organic acids. It is obtained from its combination with iron by an electrodepositing process developed by American electrometallurgists. It is an excessively hard element, being rated at nine as compared to the diamond at ten on Mohs hardness scale. According to scratch test measurements, chromium is ten times as hard as nickel, fifteen times as hard as copper and eighteen times as hard as zinc. It is the only electrodeposited metal that is useful in protecting steel from scaling at high temperatures. A .0005″ deposit will greatly increase the life of such parts at 1000° F. to 1500° F.

The use of chromium plating in the pulp and paper industry has not been extensive as yet, but it includes evaporator tubes, dryer rolls, breaker bars and rod mill rods. On the use of chromium-plated evaporator tubes, a Western kraft mill reports favorably saying that of twenty chromium-plated tubes in service in evaporators for about one year, nineteen of them are in as good shape as when first used. The one tube that had to be replaced showed no corrosion and the leak which developed was probably due to a defect in the original tube.

There are undoubtedly many applications which can be made of chromium plate in the paper industry, wearing parts, rolls, screen and heat resistant power house equipment among the rest.

Dorr Continuous Causticizing System

A. Anable, of the Dorr Company, gave an interesting description of the continuous causticizing system installed at the soda mill of the Canadian Cellulose Company, Cornwall, Ont., a subsidiary of the Howard Smith Paper Company. He showed a slide of a diagrammatic flow sheet picturing a multiple effect evaporator from which the black liquor concentrated to 35° Bé. flows to a Wagner furnace where it is burned and smelted, the heat generated being used to concentrate the liquor in the first instance. From the discharge spout of the Wagner furnace, the smelt passes to a dissolving tank after treatment in a gas scrubber with weak liquor from the mud washing step. The soda ash liquor produced in the smelt dissolving tank is continuously pumped to the causticizers where it is causticized with lime in the usual manner. The bulk of the lime is secured from the reburning of the mud, any losses being made up with milk of lime from the bleach plant. The discharge from the lime burner is fed directly into a slaking pan, after first passing through a Dorr classifier for removal of grit and unburned core.

Causticizing is carried out in deep Dorr agitators arranged in series with the slaking pan, the soda ash liquor and lime flowing through them continuously. The slurry from the last causticizer flows by gravity into the first of two Dorr 2-compartment tray thickeners contained in covered steel tanks. The clear caustic liquor overflowing this first thickener is at 12° Bé., with an average causticity of 92 per cent. The settled lime mud is removed by a Dorrco diaphragm pump at 60 per cent moisture. The clear caustic liquor goes to storage ahead of the chip digesters, while the mud is mixed with fresh wash water and filtrate and resettled in the second thickener.

The weak liquor, which is used to dissolve the smelt from the Wagner furnace after washing the products of combustion in the gas scrubber, is at 3° Bé., 95 per cent causticity and 31° C. temperature.

Diagrammatic View of Steps in Process—Mr. Anable gave a detailed description of the entire installation of the Cornwall plant of the Canadian Cellulose Company and it was easy to visualize the flow of material in a continuous cycle by a diagrammatic sectional view of the various steps which was projected from a lantern slide on a large screen. He also described an installation of a Dorr thickener and Dorrco diaphragm pump in the sulphate mill of the Thilmany Pulp and Paper Company, Kaukauna, Wis., a mill having a capacity of ninety tons of kraft pulp a day. It was demonstrated at the Thilmany mill that continuous Dorr thickeners could be

operated satisfactorily in conjunction with intermittent causticizing and settling equipment, suggesting, as Mr. Anable said, that batch causticizing plants could be changed over gradually to continuous ones, like Canadian Cellulose, by first putting the various mud washing and decantations on a continuous basis with Dorr thickeners and finally replacing the batch causticizers with Dorr continuous agitators and a continuous lime slaking layout.

Polakov Speaks of Daylight Illumination

After a paper by a representative of the Alberene Stone Company, in which the superiority of this stone over chrome brick and similar linings for black liquor furnaces was set forth, Walter N. Polakov was introduced to speak on the subject of daylight illumination, with special reference to the "Sunlike" illuminating apparatus, a method of illuminating which is said to afford a light nearly identical with that of the sun or natural daylight.

Mr. Polakov is an engineer who has specialized to a large extent in paper mill power plant design and he has had professional relations with a number of pulp and paper firms, including the Strathmore Paper Company and the Champion Fibre Company. A paper which he presented at the Spring meeting of T. A. P. P. I. in 1918, on "Valuation of Power Plant Methods" attracted a great deal of attention as a discussion of proper and improper methods of managing the power department of a paper mill might be expected to.

Developments in Lighting—Mr. Polakov prefaced a technical description of the "Sunlike" lamp for daylight illumination of laboratories and mills with an interesting historical account of illumination, from the mythical time of Prometheus, who stole the fire from heaven, to modern times and Thomas A. Edison's invention of the incandescent electric bulb. In between were mentioned Engineer Argands' invention of the tubular wick and cylindrical glass chimney (1780) and William Murdoch's introduction of gas illumination (1793). A Russion, Yablochkov, invented arc light and lighted some avenues in Paris electrically at about the time of the Civil War, Mr. Polakov said, though Léon Foucault, a Frenchman, is generally credited with the invention of the electric arc light in 1844.

The fault of the incandescent bulb, even as perfected now, with metallic tungsten filament in an argon, or nitrogen, filled bulb, was that it produced light containing about 270 per cent excess of red rays, as compared with diffused natural daylight. Various methods of eliminating excess of red, orange and yellow rays have been proposed, but nearly all employed a filtering medium like some form of blue glass which interfered with intensity and the diffusing of light.

Features of the Sunlike Lamp—The Sunlike lamp depends on an invention of French Engineer Gamain in which a bulb, gas filled, with metallic filament in blue glass such as Mazda C_2, is used. The filament is subjected to higher voltage than designed for, so as to give a white heat instead of a red glow. The bulb is surrounded by reflecting surfaces composed of mirrors specially tinted in required combinations and proportions devised to correct the special composition of light.

Mr. Polakov had the electric lights in the hall turned off and gave a demonstration of the intensity and daylike character of illumination afforded by the Sunlike lamp. The light was pleasant to the eye and while apparently one-tenth the power of the combined hall bulbs gave an almost equal illumination so that fine print could be read by it.

Examination and Photography of Paper

The concluding paper, by L. V. Foster, of the Bausch & Lomb Optical Company, Rochester, N. Y., described a microscope for examining and photographing the surface texture of papers. Paper is one of the most difficult objects the microscopist has to analyze and photographic results remarkably different can be obtained from the same sample of paper under varying conditions of illumination. Conditions of illumination in the instrument described by Mr. Foster can be varied at will and can be reproduced precisely after any lapse of time. Illustrations of the apparatus as a whole and in sections were shown on a screen. The complete text of Mr. Foster's paper and others presented at this Technical Association meeting appear in this issue.

Program of Cost Convention

The semi-annual meeting of the Cost Association of the Paper Industry will be held at Detroit, Mich., October 20-21, 1927.

On the opening day, Thursday, October 20 the proceedings will start at 9:30 A. M. with a paper by J. Norman Spawn, employment supervisor of the Champion Fibre Company, Canton, N. C., entitled "What Employment Supervision Means to the Pulp and Paper Industry," to be followed by another on "Our Cost System," by Ralph B. H. Hersey, of Hollingsworth & Vose Company, Boston. Discussion of both papers will begin at 11 o'clock, and at 12:30, the sitting will be adjourned for luncheon.

At the afternoon sitting, L. C. Reynolds, of the American Writing Paper Company, is to present a paper dealing with "The Cost Accountant's Part in Reducing Manufacturing Costs," which will be the subject of discussion as soon as presented. At 3:15 P. M. a paper is scheduled on "Inaccuracies of Business Forecasting," by H. G. Baldwin, of the American Appraisal Company, an hour being set apart for discussion of it, after which a business sitting will be held for the election of officers and reception of the secretary's report.

In the evening dinner will be held, at which entertainment and music will be provided.

A full day of papers and discussions has been provided for Friday. At 9:30 A. M. the members will assemble in the main banquet room of the Statler Hotel to hear a paper by George K. Ferguson, Watervliet Paper Company, Watervliet, Mich., on "The Determination and Application of Machine-Hour Rates in the Paper Industry" which will be followed by discussion and a paper by E. F. Bartels, of the Munising Paper Company, Munising, Mich., on "Budgetary Control," which, together with the discussion, will occupy the time of the members until the hour for luncheon.

The afternoon sitting is scheduled to start at 2 P. M. under the chairmanship of H. R. Boston. The opening paper, by Roy M. Springer, Bird & Son, Inc., East Walpole, Mass., is entitled "The Distribution of Overhead Expense to Manufacturing or Production Centers." After a full discussion of this, Ralph Knott, cost accountant, Eastern Manufacturing Company, Bangor, Me., will be heard from with a paper on "Analysis and Control of Cost Variations," followed by discussion.

All who register for the Cost Convention will be presented with cost forms and schedules for setting up machine hour rates and drawing up a budget as prepared by Messrs. Hersey, Ferguson and Bartels respectively.

Miami Superintendents Elect New Officers

At a called meeting of The Miami Valley Division of the Superintendents Association held at the Manchester Hotel in Middletown, Ohio on October 6th the following officers were elected to serve for the ensuing year:

Chairman, H. H. Lattimer, Beckett Paper Company, Hamilton; 1st Vice Chr., Jack Smith, Gardner & Harvey Paper Co., Middletown, O.; 2nd Vice Chr., H. H. Harrison, Crystal Tissue Company, Middletown; 3rd Vice Chr., W. H. Cunningham, Mead Pulp and Paper Co., Dayton; Sec'y-Treas., C. H. R. Johnson, Beckett Paper Company, Hamilton.

The next monthly meeting of this division will be held at the Hotel Anthony Wayne at Hamilton, Ohio, on Saturday, October 29th and will be in the nature of a joint meeting with the Printing Craftsmen Association of Dayton and Cincinnati, Ohio, and immediate points in the Miami Valley. Mr. H. H. Lattimer and Jack Smith will arrange the program and meeting place for the occasion, which promises to be a very valuable and interesting meeting on the problem of Difficulties of Printing Paper.

Every Mill manager, superintendent and other interested person will be welcome to attend this meeting which will convene at two p. m. on the above date.

T. A. P. P. I. Holds Fall Meeting

Middletown, Ohio, Host of Three Day Session Covering Discussions and Visits to Miami Valley Plants

THE annual fall meeting of the Technical Association of the Pulp and Paper Industry was held at the Manchester Hotel, Middletown, Ohio, Wednesday, Thursday and Friday, October 5, 6 and 7, 1927. The meeting was an unusually helpful and interesting one. The allied industries of Middletown and the entire Miami Valley extended a warm welcome to the visitors which numbered well over a hundred, and great credit is due to the efforts of the local committee for the satisfactory and successful manner in which all the details were handled. Those members of the association who were privileged to attend this fall meeting undoubtedly will return to their home plants with new enthusiasm and larger vision from the contacts made at this convention.

FIRST DAY'S SESSION

President C. E. Tucker presided at all meetings and opened the convention at 9:30 o'clock on Wednesday morning, stressing in his opening remarks the work of the Technical Association and of the various committees within it.

Reports of Standing Committees

The order of business of the morning session being the presentation of reports of the various standing committees, the first report was that on Abstract and Bibliography, which was read by T. A. P. P. I. Secretary W. G. MacNaughton, in the absence of Dr. C. J. West, chairman. This report explained the work of the committee since the time of the last annual meeting, showing that the committee on Abstracts and Bibliography has functioned excellently.

Forthcoming Bibliography of Period Since 1900—Practically all of the spare time of the chairman of the Committee on Abstracts and Bibliography has been spent in an effort to meet the demand for a bibliography of paper making covering the period from 1900 to date. The undertaking is really tremendous when it is appreciated that most of the paper making magazines are published weekly, and that there is a period of more than 25 years to be covered. It is estimated that the work will be finished about the first of the year, and arrangements are now pending for the publication of the book. Hope is expressed that the paper industry will support this undertaking of the Technical Association, and underwrite it at the proper time by placing advanced orders for the bibliography.

Coated and Processed Papers—The second report to be presented was that of the Committee on Coated and Processed Papers. This was also read by Mr. MacNaughton, as it was impossible for D. V. Lowe, chairman of the committee to be present. Mr. Lowe's report stated that a complete revision of the section on coated paper for Volume Five of the text books, The Manufacture of Pulp and Paper, published by McGraw-Hill Book Co., New York City, had been revised. The association is largely indebted to Edwin Sutermeister, of S. D. Warren Co. for this work. Mr. Lowe expressed the thought that the presentation was well in keeping with present day practice and would stand without serious criticism for some years to come. Proper support from the large coating manufacturers seems difficult to obtain and articles on the subject hard to secure. It seems probable that several contributions will be ready for presentation at the spring meeting, particularly on the subject of foam elimination.

Paper Testing—The report of the Paper Testing Committee, by Chairman B. W. Scribner, was then read by Ernest McIntyre. In this report was stressed the work of the committee on official testing methods and development of paper testing methods, as well as the program for annual meeting next spring. Mr. Scribner's report reads as follows:

"Three additional paper testing methods have been proposed by the committee for adoption as association official methods. These are analysis of mineral coating, analysis of mineral filler and folding endurance. Respecting folding endurance, there was some opposition to adopting the Schopper type of folding tester specified. Several favored including the M. I. T. type of tester. The committee recognizes that the Schopper type of tester is not entirely satisfactory but it is the only type in extensive use and the only one whose performance is thoroughly known. It is felt therefore that it must be regarded as the standard type of folding tester at the present time. The M. I. T. tester is of much simpler design than the Schopper, but little is known of its performance respecting its use for general paper-testing purposes. Some study of it has been made by the Bureau of Standards, which is favorably impressed by it and which contemplates further study to find if with some modifications, it can be proposed for use as a standard testing instrument.

"A tentative official method for determination of the gloss of paper is being developed by the committee. This specifies the use of a testing instrument of the Ingersoll Glarimeter type.

"Two tentative official methods, ink absorption of blotting paper and water absorption of bibulous papers, were considered by the committee but it was decided to refer them to sub-committees for further study and development.

"At the request of Mr. MacNaughton, the committee undertook the revision of the association publication, Paper Testing Methods. A new edition was necessitated by exhaustion of the present edition, the demand for this excellent handbook of paper testing technic being very heavy. In view of the many new developments since the last edition was printed, it was considered necessary to thoroughly revise it and bring the new edition up to date.

"Suggested revised copy is being prepared by the committee chairman with the assistance of other members of the Bureau of Standards paper-section staff. Three sections have been practically completed—Preface, General Information, and Influence of Hygrometric State. The latter was prepared by F. T. Carson of the Bureau of Standards. It is believed to cover this important subject as thoroughly as is consistent with the entent of the publication. The subjects treated are—general discussion of humidity and temperature, control of relative humidity, effects on the different properties of paper produced by changes in hygrometric state, and the official conditioning method.

"It is proposed to include in the new edition all of the official methods so far adopted to illustrate types of instruments specified in these methods, as well as other types of instruments available for the purposes designated in the official methods, and to describe and illustrate new methods and instruments developed since the last edition was published.

"Development of methods for testing ink resistance of printing papers, grease resistance, opacity, adherence of mineral coating, fiber composition, and dirt content of fine papers is in progress in the various sub-committees. This work has necessarily been relegated to the background in favor of revision of 'Paper Testing Methods.'

"At the request of the chairman, papers were prepared by two paper technicians on subjects of vital interest at the present time. These are, 'Expansion of Paper With Varying Humidity,' R. C. Griffin, Arthur D. Little, Inc., (P. T. J., Aug. 4, '27), and 'An Instrument for Measuring the Porosity of Paper,' L. Emanueli, Societa Italiana, Pirelli, Milan, Italy, (P. T. J., Sept. 8, '27).

"Both of these papers describe newly developed paper testing instruments of considerable interest. These papers and related matters will be discussed at the annual meeting as well as the paper testing methods being developed in the various sub-committees."

Cellulose—W. E. Byron Baker, chairman of the Committee

on Cellulose reported that favorable progress was being made including the preparation of a paper which is being planned for presentation at the spring meeting. Mr. Baker expressed hope that it would be possible to develope broader interests throughout the association.

Mechanical Pulp—The following report of the Mechanical Pulp Committee by Chairman S. C. Brayton was read in his absence by Mr. MacNaughton:

"It is the plan of the Groundwood Committee to continue the work started in previous years by Mr. C. K. Andrews in regard to the utilization of groundwood screenings either by the use of groundwood refiners or other methods. A survey of the industry will be made in the form of a continuation of the survey made by Mr. Andrews in 1924, showing the progress made since that time.

"A practical application of the grinder code worked out by the committee in 1926 will be presented at the annual meeting. The purpose of this will be to show the industry how this code can be applied to specific instances.

"The committee will also make a survey of the newer developments in mechanical equipment and processes throughout the industry, and a paper covering the material collected will be presented at the annual meeting."

C. M. Baker Introduced

Following the reading of the above report, Mr. MacNaughton introduced Mr. C. M. Baker, recently appointed by the American Paper and Pulp Association to study the stream pollution problem. Mr. Baker has had considerable experience in this field, as noted in the announcement of his appointment on another page in this issue, and although making no definite statements, he stated that he was convinced the problem would be solved by the industry itself. He mentioned the co-operative work of Wisconsin and of his work with the Sanitary Board of that State. Two bulletins have been published on the subject. One entitled "Stream Pollution" may be obtained according to Mr. Baker, by writing the State Board of Health, Madison, Wisconsin.

Stuff Preparation—G. K. Spence, chairman of the recently inaugurated committee on Stuff Preparation or Beater Control, followed the remarks of Mr. Baker with his committee report. He stated that the personnel of the committee was made up of men with considerable experience, and that the conclusions reached by the combined efforts of the group should prove of great benefit to all paper makers in the association. The field of activity of the committee seems very large and includes such studies as control of furnish of sulphite, soda, rag and groundwood pulps, as well as de-inked papers, together with methods in use for de-inking old papers and preparing the stock for the beaters, the control to include alkalinity, chlorides, colloidal stock, etc. In addition to these would be studies on time element in beating, effect of beater temperature on stock for various purposes, effect of density on time of hydration, hydrogen ion control, quick methods for determining the nature of stock before passing from beaters, effect of jordans as compared with beaters, mechanical devices for recording action of beaters, foam and slime preventatives, coloring, sizing, loading, etc.

One of the papers to be presented by this committee for discussion at a sectional meeting in New York will be on the control of stocks furnished to the beater in order to eliminate as much as possible foaming on the paper machine. Several other papers are also planned for the New York Annual meeting.

Roofing Felt—P. W. Codwise, chairman of the Roofing Felt Committee, in his report explained the reason for the organization of the committee, and stated that one of the first aims would be to standardize methods for testing felt. These methods will include the complete testing of the product but special emphasis will be laid upon the suitability of the felt for saturating purposes. He explained that to his knowledge the only tests that have been worked out for roofing felt are those printed by the Prepared Roofing Association during 1921 and 1922. It is believed that a complete set of felt testing methods prepared from the standpoint of the felt manufacturer will be welcomed by the industry.

As the opportunity arises, it is proposed to consider the various features of felt manufacture in detail. Among these features may be mentioned the most efficient method of drying, the most economical methods of disintegrating the rags, and a study of the formation of the sheet of felt. The application of the freeness tester to felt manufacture also offers an interesting field of investigation, and in this connection mention may be made of a recent article which has been published upon the freeness of roofing felt stock.

The problem of stock saving and of the reduction in the percent shrinkage of the rag stock during the process of manufacture is another vital problem in connection with felt manufacture mentioned by Mr. Codwise, and this is one which has already received attention from the more progressive manufacturers both through the re-use of white water and through the employment of save-alls. However, there undoubtedly is still an interesting field for work in this connection.

Sulphite Pulp. The report of the Committee on Sulphite Pulp, prepared by G. P. Genberg, chairman was then read in his absence by Secretary MacNaughton. Mr. Genberg stated that since this year's annual meeting, the Sulphite Committee has practically wholly concentrated on further work on the method to determine the initial strength of pulp, outline of which was presented at the annual meeting and recommended as a tentative standard.

This work is carried out in co-operation with the Canadian Section Committee on Physical Standard, and our endeavors are to formulate a detailed method on the basis of the conditions already presented. The method will include detailed specifications for sampling and disintegrating of the pulp and for the construction of a sheet machine. Specification for the construction of the sheet machine is not considered necessary by the committees working on this problem, if strict attention is paid to the optimum drainage time, specified in the outline, of 12-14 seconds.

In order to make the method complete, it is, however, desirable to include such a specification, and as the committee has no data available as to the merits of the various apparatus now used, the selection will be governed by the returns on a questionaire, now being distributed from the Secretary's office, in which the sheet machine is subject for discussion. The committee desires to ask the members who rceive this questionnaire to send in a hundred per cent reply so as to give them the necessary co-operation in this important work.

On the request of the Chairman, Dr. Ruff of the Mead Pulp & Paper Co., prepared an article (P. T. J., Aug. 25, '27) pertaining to the construction of an inexpensive humidity room. Thanks to Dr. Ruff were expressed for this splendid contribution. The development of this humidity control is an excellent contribution to the subject of strength testing in general and places a humidity room within economical reach for any laboratory doing strength testing work. It was recommended to the members that they make practical use of Dr. Ruff's humidity control.

Data and discussion pertaining to the various steps in the method has been prepared by the chairman in connection with comments made by various authorities on the subject. (P. T. J., Sept. 15, '27.)

The committee is also active in getting individual laboratories to use the method. The results so far have been very satisfactory and the method is now being applied to all grades of pulp ranging from groundwood and old paper stock to bleached sulphite and kraft by about fifteen to twenty laboratories.

At the next annual meeting, the complete method will be presented for consideration and it is also expected by then to have reports from various mills as to results obtained from the method.

Training for the Industry

The last standing committee report presented during the first morning of the convention was that of the Committee on Training for the Industry by Allen Abrams, chairman. This committee is composed in addition to Mr. Abrams, Prof. P. D. Bray and Messrs. E. H. Neese, J. J. O'Connor, J D. Rue,

L. E. Smith, T. F. Spear and B. M. Thomas. The text of the reports is as follows:

"In contradistinction to the former committee which concerned itself with training men already in the pulp and paper industry, this committee was formulated to train men for the industry. Consequently, it has grasped the opportunity for narrowing the gap between the technical man and the operating man by giving the technical man a mild dose of operating experience.

"At a meeting in Madison on June 4th, there were gathered four members of the committee, four professors from the University of Wisconsin and two other interested men. After a thorough discussion of the many co-operative plans now in operation, the committee decided to proceed with a tentative arrangement between the University of Wisconsin and the pulp and paper mills in the vicinity.

"The arrangement contemplated the following program: 1—During the university year, representatives to be sent from certain pulp and paper mills in the State to give talks before the classes in engineering, chemistry, etc. Men would be selected who could present fairly to the student a picture of the requirements and the possibilities of this industry.

"2—After the student had had an opportunity to consider the desirability of entering the industry, a census would be made to determine what men were interested in doing summer work in the mills. From these would be picked men who showed a reasonable aptitude for the work and a possibility of making good at it.

"3—Having previously canvassed the pulp and paper mills as to the number of men they could place for a period of two or three months in the summer, there would be allotted to these mills the required number of students. Such men would preferably be placed in laboring positions under the supervision of either a technical man or the mill manager; and would receive the customary rate for the work in which engaged. It would be explained to them that they were not to expect any particular favors but, on the other hand, that they were to feel free to come for advice at any time. At the end of the summer period, these men would submit a report covering their experiences and indicating what they had learned from their summer's work.

"4—Starting with men who have completed the freshman year in the University, it was proposed to place these either in different departments of the same mill or in different mills for the three successive summer vacations during their college training period. At the end of that time, it was believed that the student should have a fairly clear picture of the industry and should have a more sympathetic attitude toward the operating man.

"5—Provided this program worked out satisfactorily, it was then believed desirable to develop the idea on a larger scale. Under such an arrangement the country would be divided into co-operating areas, wherein the mills and the schools in the respective areas would be brought in touch with one another. It was suggested that the office of the secretary of T. A. P. P. I. might act as central agency to bring these parties together.

"While it was rather late in the year to attempt an experiment, yet an arrangement was made whereby four students of the University were placed as laborers in the following mills: Tomahawk Kraft Paper Company, Kimberly-Clark Company, Beloit Iron Works, and Marathon Paper Mills Company. The success of this experiment is to be judged by reports received both from the mills and from the students themselves. On the one hand, it is found that the mills are thoroughly satisfied that they had derived full value from the student's work and, at the same time, were making a material contribution toward the welfare of the industry. On the other hand, it is particularly interesting to note how this contact has assisted the student. Following are short excerpts from their reports:

> "No. 1—'I consider the experience a valuable asset. It is clearer to me now than it was before that practical contact with industrial operations during my college course would enable me to fit easier into an organization . . . I realize that it is necessary to do the job yourself in order to become thoroughly acquainted with the operation . . . I learned much concerning the way in which the company handles the men, and also obtained the reactions of the men themselves, with whom I became very good friends.'
>
> "No. 2—'I felt that I had obtained a good mechanical training as well as a good study of the various types of working men . . . My experiences on this job taught me that a paper machine is far from finished when it is first placed together; that there are many errors that must be corrected before the machine will run properly . . . The Italian mechanic and I became friends from the start; he proved to be very patient in explaining exactly what he wanted . . . In later work I helped a Welshman who, among the workmen, proved to be my best friend in the plant . . . The employees proved to be a wonderful lot to work with. They stay at this place, as they are never driven by the bosses.'
>
> "No. 3—'I think that my summer was very well spent. I obtained a general knowledge of the working of a modern paper mill which will be of great value if I obtain work in a paper mill after graduation. But even if I go into a field other than this, I have learned a great deal about working men and working conditions that will be invaluable to me anywhere . . . Among some of my jobs were: tending the drum barker conveyer, chopping knots and rot from barked bolts, feeding the chipper, cleaning up different parts of the mill, leveling off the chips in the chip loft above the digesters and as a sulphite skinner . . . My contact with fellow workers during the seven weeks was, I think, very profitable, indeed . . . One of the things I gained was an understanding of the qualifications of a capable foreman . . . In breaking in a new man, all the foremen under whom I worked placed me under an older employee with instructions to the older man to show what was to be done and how to do it.'
>
> "No. 4—'I may say that a summer's work in a mill can give students a good slant on the problems of industrial life and industrial production . . . In my mill work this summer I was with the construction crew all the while. Being thrust from the social life of the university student into a "chain gang," I was quite naturally uncomfortable. However, my physique improved enough during the first two weeks for me to stand the bullish knocks for the rest of the summer: I got what I wanted in that I had the opportunity of working in and becoming acquainted with practically every department of the mill . . . I got a first hand idea of the difficulties and cost of commercial production . . . A sense of these difficulties must serve to keep a person's imaginative powers from playing with foolish and impractical ideas.'

"Such practical results indicate the feasibility of this plan so that during the coming year it is the purpose of this committee to carry out the full program in the state of Wisconsin and to amplify the work in other states."

Although some discussion followed the presentation of most of the committee reports, it seems that the report of Committee on Training struck a vital spark. A lengthy discussion followed its presentation, and a number of the members made use of the opportunity to present their own experiences and points of view.

Secretary MacNaughton then spoke briefly on the American-Scandinavian fellowship and of the Technical Association service to members. He said that to date, 86 service bulletins had either been compiled or were in the process of compilation. Only seven of the 86 are in process of compilation. In the series of bulletins already presented, many subjects of interest to a large number of paper makers have been covered.

H. H. Harrison of the local committee, spoke for a few minutes on the plant visitation trips for the convention and described briefly various plants to be visited and the products of each. His talk concluded the work of the morning.

Tuesday Afternoon Session and Evening Dinner

Tuesday afternoon was spent in visiting various mills in Middletown, including the Gardner-Harvey Paper Co., The Crystal Tissue Co., The Sorg, Oglesby and Smith mills, Wrenn Paper Co., Wardlow-Thomas Paper Co., Harding-Jones Paper Co., and several converting plants including the Miami Valley Coated Paper Co. and the Advance Bag and Paper Co. Members indicated the firm or firms they wished to visit and spent the afternoon looking around the other fellow's mill.

In the evening at a delightful and well attended dinner, Chairman Tucker expressed thanks for the bringing of the meeting to Middletown. This brought forth loud and long applause.

The first speaker on the evening program was A. J. Beatty, director of industrial training, American Rolling Mills Co. His talk was filled with witty stories as well as facts relative to the need and importance of industrial training. He stressed particularly the training of salesmen and technical men in production operations. Of a total of about 3500 employees in his company, approximately 1200 of them were said to be in some form of educational training. He stated that it was absolutely essential for the management to be behind any industrial educational program in order to make it a success.

Following Mr. Beatty's brief and interesting talk, Mr. James Clark of England was introduced who spoke briefly of his trips to America and the condition of the paper industry in his homeland. He felt that our educational and training program was further developed than it is in England which together with many things he had seen and heard would cause him to return home filled with enthusiasm. He extended the greetings of the British Technical Section to T. A. P. P. I.

Mr. W. Miller, principal of the Middletown High School, was introduced following the talk by Mr. Clark. Taking as the basis for his talk the story of Little Jack Horner, Mr. Miller developed an interesting comparison of the "little" and "big" man. He showed that the little man was suspicious, lacked faith, did not grow, had a mind like a closed book, was unhappy, accomplished little and contributed nothing. Three thoughts were outlined as to the anchors for holding men down: one was "the easy job"; the second was "past success"; and the third was "tomorrow". Mr. Miller's talk concluded the program for the day.

SECOND DAY'S SESSION

Thursday morning's session was opened with a very brief report by E. F. Troop, chairman of the Heat, Light and Power Committee. Mr. MacNaughton then reported briefly on the work of the Sulphate Pulp Committee and discussed the McSweeny Bill which has been sponsored by the National Program of Forest Research. A resolution was passed in support of the Bill with instructions that a copy of the resolution be submitted to the proper authorities.

Application of Electricity to the Paper Industry

A. D. Flint, of the Union Gas & Electric Co., outlined in a paper that was well received the various applications of electricity prevalent in the mills throughout the Miami Valley. Speaking of his interest in the welfare of the paper industry, and giving it as his reason for a central power station representative appearing on the program, Mr. Flint said there are 27 paper mills located in the territory served by his company, 22 of which are buying all or a large portion of their power requirements. The power supplied to these mills amounts to 125,000,000 kw. hrs. per year. The Union Gas & Electric Co. estimate they supply 58 per cent of the power used in the paper industry of their district, considering all sources of power such as water power, direct steam engine drives, etc., in making up the total, and 21 per cent of the company's total sales, he said, represents power supplied to paper mills.

Mr. Flint said that in preparation for this service, his company engineers visited plants in all sections of the country and are familiar with new developments and new power applications in connection with paper and other lines of industry. These surveys are not only concerned with electricity as a means of power application but deal with many other phases of the conversion of raw material into the finished product. This naturally involves an investigation of the uses and requirements for steam. The company has found in many instances that steam was wasted because it was considered as a by-product of power and therefore not costly. In most of such cases, the Union Company has been able to show that steam economy is dollar economy regardless of the work which it may have done prior to its use in the process and that the total cost of heat and power will be lower if the proper heat balance is maintained.

In the afternoon, trips were made to the mills at Hamilton, including The Beckett Paper Co., Shuler and Benninghofen Co., and The Black-Clawson Co. Likewise, a trip was made by some of the members to the Columbia Power Plant, a very large and modern central station located near Cincinnati.

After a pleasant dinner and smoker at the Hotel Manchester, an evening inspection trip was made through the East Side Plant of the American Rolling Mills Co., Middletown. This trip proved to be a most enlightening and interesting one. The vast size of establishment, the many operations to be performed in the production of pure iron sheets, and the immense amount of equipment necessary for such production were forcefully brought to mind. Likewise, the attention required throughout all of the various operations, and the standardization of products by means of scientific, technical control were indeed very interesting.

THIRD DAY'S SESSION

The last day of the convention, Friday, October 7th, included in the morning's program a presentation of two papers—one entitled "The Use of Pure Iron in the Paper Industry," by D. M. Strictland, of the American Rolling Mill Co., which appears in full on another page of this issue, and the second entitled "Report on Sulphite Cooking Investigation." Both of these papers were well received.

Chairman Tucker then introduced Mr. A. Hooker, of the Hooker Electro-Chemical Co., who spoke concisely and interestingly on "Bleaching Plants of Europe." Some of his recent experiences and information obtained from his recent trip to England, Norway, Sweden, Finland and Germany were mentioned, particularly the differences he found in equipment and methods of bleaching in this country with those in European countries.

Following Mr. Hooker's address the meeting adjourned, and various groups assembled for plant visitation trips to mills in West Carrollton and Dayton. Visits were made to the plants of the Oxford Miami Paper Co., West Carrollton Parchment Co., American Envelope Co. and the Miami Tablet Co., all of West Carrollton, Ohio. From this city, the association group proceeded to the plant of the Frigidaire Corporation at Dayton, one of the most unique industrial establishments in America. Luncheon was here served in the cafeteria of the establishment through the courtesy of the Frigidaire Corporation, after which the visitors were conducted on a trip through the plant.

The convention program was concluded with visits to the National Cash Register Co. and the paper mills of Dayton-Peerless Division of the Mead Pulp and Paper Co. and the Aetna Paper Company.

Registration List

Abrams, Allen, Marathon Paper Mills Co., Rothschild, Wis.; Abrams, A. J., Bogalusa Paper Co., Inc., Bogalusa, La.

Bachelder, C. L., Western Paper Makers Chemical Co., Kalamazoo, Mich.; Baker, C. M., State Health Dept., Madison, Wis.; Baker, W. E., Continental Paper & Bag Mills Corp., New York, N. Y.; Bennett, Harold, Gardner & Harvey Co., Middletown, O.; Bentzen, T. C., Whiting-Plover Paper Co., Stevens Point, Wis.; Bergstrom, N. H., Bergstrom Paper Co., Neenah, Wis.; Bilisoly, J. M., Dorr Co., Chicago, Ill.; Bing, Harold, Paper & Textile Machy. Co., Sandusky, O.; Boast, W. H., Gardner & Harvey, Middletown, O.; Booth, L. M., Booth Chemical Co., Elizabeth, N. J.; Bosworth, R. L., Crocker-McElwain Co., Holyoke, Mass.; Bowen, T. C., Strathmore Paper Co., Mittineague, Mass.; Brazeau, G. S., Appleton Machine Co., Appleton, Wis.; Breyfogle, L. H., Draper Bros. Co., Canton, Mass.; Butterfield, E. H., Gardner & Harvey Co., Middletown, Ohio.

Cable, Donald E., Oxford Paper Co., Brooklyn, N. Y.; Cameron, James A., Cameron Machine Co., Brooklyn, N. Y.; Champion, C. H., Kalbfleisch Corp., Kalamazoo, Mich.; Charron, R. C., United States Envelope Co., Worcester, Mass.; Christensen, A., Rhinelander Paper Co., Rhinelander, Wis.; Clark, James d'A., Bowater's Paper Mills, Ltd.; Northfleet, Kent, Eng.; Cornell, John, Paper Mill, New York, N. Y.; Crossley, T. Linsey, Industrial Laboratories, Ltd., Toronto, Ont.; Curran, C. E. Forest Products Laboratory, Madison, Wis.

Dieffenderfer, J. C., Paper Makers Chemical Co., Easton, Pa.;

Dilts, F. B., Dilts Machine Works, Inc., Fulton, N. Y.; Ditmyre, John, Gardner & Harvey Co., Middletown, O.; Dixon, J. Calco Chemical Co., Bound Brook, N. J.; Dunbar, T. L., Canadian Stebbins Engineering & Mfg. Co., Montreal, Que.

Egan, O. S., Nekoosa-Edwards Paper Co., Port Edwards, Wis.; Ekman, Sigge, Tomahawk Kraft Paper Co., Tomahawk, Wis.; Eminger, R. L., American Pulp & Paper Mill Supts. Association, Miamisburg, O.

Faram, H. S., Watervliet Paper Co., Watervliet, Mich.; Flint, A. D., Union Gas & Electric Co., Cincinnati, O.; Foxgrover, James, Western Paper Makers Chemical Co., Kalamazoo, Mich.; Francis, D. R., Waterbury Tool Co., Waterbury, Conn.; French, A. H., Cherry River Paper Co., Richwood, W. Va.

Galloway, W. W., Hagar Straw Board & Paper Co., Cedarville, O.; Gardner, A. T., Combined Locks Paper Co., Appleton, Wis.; Geohegan, K., Aetna Paper Co., Dayton, O.; Gephart, O. P., Oxford-Miami Paper Co., West Carrollton, O.; Geran, Edward, Gardner & Harvey Co., Middletown, O.; Glatfelter, P. H., P. H. Glatfelder Co., Spring Grove, Pa.; Goeppinger, O. J., Waterbury Tool Co., Waterbury, Conn.; Gross, W. E., Hammermill Paper Co., Erie, Pa.

Hadley, Harry, Gardner-Harvey Co., Middletown, O.; Ham, E. G., John A. Manning Paper Co., Troy, N. Y.; Harper, R. O., B. D. Rising Paer Co., Housatonic, Mass.; Harrison, H. H., Crystal Tissue Co., Middletown, O.; Hartman, J. R., Union Gas & Electric Co., Cincinnati, O.; Harvey, Arthur R., Gardner & Harvey Co., Middletown, O.; Harvey, George H., Gardner & Harvey Co., Middletown, O.; Harvey, Harold, Gardner & Harvey Co., Middletown, O.; Harvey, Tom, Gardner & Harvey, Middletown, O.; Haskell, J. D., Dilts Machine Co., Fulton, N. Y.; Hendrickson, E. C., Mead Pulp & Paper Co., Chillicothe, O.; Hinman, E. S., P. H. Glatfelder Co., Spring Grove, Pa.; Hodgen, P. E., Munising Paper Co., Munising, Mich.; Holden, H. H., Vera Chemical Co., Stoneham, Mass.; Holmes, H. M., Hammermill Paper Co., Erie, Pa.; Hooker, A. H., Jr., Hooker Electrochemical Co., New York, N. Y.; Howell, C. M., Scott Paper Co., Chester, Pa.; Huber, H., Marburg Bros., New York, N. Y.

Joachim, H. L., Central Paper Co., Muskegon, Mich.; Johnson, F. H., Jr., Cherry River Paper Co., Richwood, W. Va.; Johnson, W. O., Strathmore Paper Co., Mittineague, Mass.; Johnston, R. S., Pusey & Jones Corp., Wilmington, Del.

Keesey, Horace, Schmidt & Ault Paper Co., York, Pa.; Kellogg, R. S., News Print Service Bureau, New York, N. Y.; Kessler, J. R., Dill & Collins Co., Philadelphia, Pa.; Kimball, D. B., Bird & Son, Inc., East Walpole, Mass.; Klein, A. F., Hammermill Paper Co., Erie, Pa.; Kutter, H. L., Black-Clawson Co., Hamilton, O.

Libby, F. D., Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.; Little, J. S., Western Electric Co., Chicago, Ill.; Lockey, H. H., B. D. Rising Paper Co., Housatonic, Mass.; Longstreth, L. E., National Aniline & Chemical Co., Chicago, Ill.; Lynch, Cecil, Dill & Collins Co., Philadelphia, Pa.

McCombs, M. F., Electro Bleaching Gas Co., New York, N. Y.; McCrea, G. F., Mead Pulp & Paper Co., Chillicothe, O.; McGrath, Miss L. E., Booth Chemical Co., Elizabeth, N. J.; McIntyre, E. F., Bureau of Standards, Washington, D. C.; MacDonald, C. R., Consolidated Paper Co., Monroe, Mich.; Macklem, W. W., Black-Clawson Co., Hamilton, O.; MacNaughton, W. G., Technical Association of the Pulp & Paper Industry, New York, N. Y.; Mahle, L. W., Ohio Boxboard Co., Rittman, O.; Marburg, L. C., Marburg Bros., New York, N. Y.; Maye, George J., Hooker Electrochemical Co., Niagara Falls, N. Y.; Milligan, Chas., Champion Coated Paper Co., Hamilton, O.; Monsson, W. H., Forest Products Laboratory, Madison, Wis.; Montgomery, A. E., J. O. Ross Engineering Corp., Chicago, Ill.; Murbach, R. J., Gardner & Harvey Co., Middletown, O.

Niklasson, Gunnar, Bogalusa Paper Co., Inc., Bogalusa, La.; Nye, W. L., Scott Paper Co., Chester, Pa.

Peake, J. B., Mathieson Alkali Works, Inc., Cincinnati, O.

Radsch, R. M., Thilmany Pulp & Paper Co., Kaukauna, Wis.; Randall, A. T., Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; Roe, R. B., Paul A. Sorg Paper Co., Middletown, O.; Rogers, William, Paper Trade Journal, New York, N. Y.; Ruff, H. T., Mead Pulp & Paper Co., Chillicothe, O.

Scott, D. E., Adams Bag Co., Chagrin Falls, O.; Schwebel, A. X., Gardner-Harvey Co., Middletown, O.; Shonkwiler, F. L., Fulton Engraving Corp., Middletown, O.; Sisson, F. T. E., Racquette River Paper Co., Potsdam, N. Y.; Spence, George K., New York & Pennsylvania Co., Johnsonburg, Pa.; Spierling, A. O., Hammermill Paper Co., Erie, Pa.; Start, L. M., Rice, Barton & Fales, Inc., Worcester, Mass.; Strong, E. P., Munising Paper Co., Munising, Mich.; Swan, J. H., Gardner & Harvey Co., Middletown, O.; Swanson, W. H., Kimberly-Clark Co., Neenah, Wis.

Theroux, W. H., Paper & Textile Machy. Co., Sandusky, O.; Traquair, John, Mead Pulp & Paper Co., Chillicothe, O.; Troop, E. F., P. H. Glatfelder Co., Spring Grove, Pa.; Tucker, E. C., Chemical Paper Manufacturing Co., Holyoke, Mass.

Weed, W. J., Electro Bleaching Gas Co., New York, N. Y.; Weber, Edward, National Aniline & Chemical Co., Chicago, Ill.; Wehmer, P. F., Electrical Testing Laboratories, New York, N. Y.; Weston, H. E., The Paper Industry, Chicago, Ill.; Whitesel, S. F., Union Gas & Electric Co., Middletown, O.; Whittington, E. F., Standard Paper Co., Kalamazoo, Mich.; Wiberg, A., Gilbert Paper Co., Menasha, Wis.; Wilkins, R. A., Bird & Son, Inc., East Walpole, Mass.; Wilson, E. J., F. C. Huyck & Sons, Albany, N. Y.
Young, G. H., Fulton Engraving Co.

Industrial Developments in Potash and Cellophane

Industrial developments in their chemical and engineering aspects are discussed in a most informative manner in the bulletins issued monthly by Arthur D. Little, Inc., Cambridge, Mass. In Industrial Bulletin No. 9, for September, 1927, the position of potash is set forth, reference being made to the discovery of new deposits in the United States and the utilization of the waters of the historic Dead Sea in Palestine which are exceptionally rich in potash salts, the potash content of the Dead Sea being estimated at 1300 million tons.

Control of Acidity and Alkalinity in the Manufacture of Paper[1]

By W. A. TAYLOR
President, LaMotte Chemical Products Company

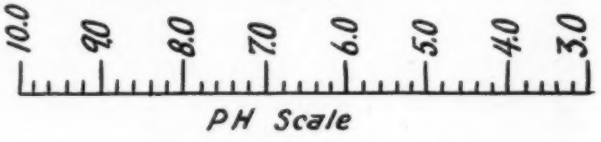
CONTROL of acidity and alkalinity by means of pH measurements has been so widely adopted by the various chemical industries, and especially by pulp and paper manufacturers, that we do not feel that it is necessary to go into the explanation of the meaning of Hydrogen Ion Control and pH values. We shall therefore give only a simple method by which these terms can be made clear to a plant foreman or an ordinary workman.

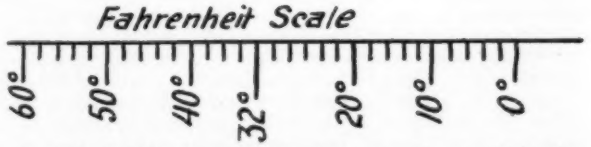
Meaning of pH Scale

The pH scale for expressing acidity and alkalinity can best be explained by comparison with the Fahrenheit thermometer scale. On the Fahrenheit scale 32° represents the freezing point of water. For the sake of illustration, we shall assume that values above and below 32° represent degrees of heat and coldness respectively. Thus, any values higher than 32°, such as 34°, 36°, 40°, etc., denote an increase in heat, the degree of heat **increasing** as the numbers **increase.** On the other hand, any values below 32°, such as 30°, 28°, 20°, etc., denote an increase in coldness, the degree of coldness **increasing** as the numbers **decrease.**

In a similar manner the degree of acidity or alkalinity of a solution is expressed by the hydrogen ion or pH scale. Instead of being called degrees, as in the case of the thermometer, the units on this scale are called pH values. It is apparent that it is not necessary for a person to know the derivation of the term "degree Fahrenheit" in order to determine the temperature of a solution. It is equally true that the worker need not know the meaning of the term "pH" in order to use this method for measuring acidity and alkalinity. On the hydrogen ion scale, a value of pH 7.0 represents neutrality. This means that if the material being tested has a pH of 7.0 it is neither acid nor alkaline.

Following the illustration of the thermometer shown herein, any values higher than pH 7.0, such as, 7.2, 7.4, 8.0, 9.0, 10.0, etc., denote alkalinity, the degree of alkalinity **increasing** as the numbers **increase.** Analogously, any values lower than pH 7.0, such as 6.8, 6.6, 6.0, 4.0, 2.0, etc., denote acidity, the degree of acidity **increasing** as the numbers **decrease.** This will be clear from the following figure:





A pH value is therefore simply a number denoting the degree of acidity or alkalinity of a solution, and an operator will learn in a few days to use this term just as intelligently as he does the term "degree Fahrenheit." To give a concrete example, let us say that a solution has a pH value of 7.6. The solution is of course slightly alkaline. If another has a pH of 8.2 it is more alkaline than the one of pH 7.6. It is therefore clear that an acid or acid salt, such as alum, must be added to a solution of pH 8.2 to bring it to a pH of 7.6 and that larger quantities must be added to bring it to the neutral

[1] Read at a meeting of the Technical Association of the Pulp and Paper Industry in the Chemical Exposition, New York, Sept. 28, 1927.

point of 7.0, or to an acidity of pH 6.6, 6.0, etc. Similarly, if a solution has a pH of 6.0 it is acid and it is necessary to add alkali, such as lime or soda ash, to it in order to bring it to the neutral point pH 7.0, or to an alkaline value such as pH 8.0, etc.

Indicators

pH determinations are made by means of indicators which, as you all know, are dyes which change in color when they are acted upon by solutions of different acidities and alkalinities. The indicators which are used are given in the following table, together with their pH ranges and color changes.

Name	pH Range	Color Change
Meta Cresol Purple	1.2-2.8	Red-Yellow
Bromphenol Blue	3.0-4.6	Yellow-Blue
Bromcresol Green	4.0-5.6	Yellow-Blue
Chlorphenol Red	5.2-6.8	Yellow-Red
Bromthymol Blue	6.0-7.6	Yellow-Blue
Phenol Red	6.8-8.4	Yellow-Red
Cresol Red	7.2-8.8	Yellow-Red
Thymol Blue	8.0-9.6	Yellow-Blue
Nitro Yellow	10.0-11.6	Yellow-Orange
Sulfo Orange	11.0-12.6	Yellow-Orange

Each indicator, of course, has its own color change. Thus Bromthymol Blue is yellow at pH 6.0 and deep blue at pH 7.6; Chlorphenol Red is yellow at pH 5.2 and deep red at 6.8, etc. By adding solutions of these indicators to separate test tube of the material which is to be tested, and comparing the color obtained with the color standards for the various indicators the pH can be read off directly from the standards.

Application

Hydrogen Ion Control has recently been applied to the sulphite pulp process. It is well known that steel tanks corrode very rapidly when they are used for making sulphite pulp by cooking the wood with an aqueous solution of sodium sulphite. If sufficient caustic soda is added to prevent corrosion, an unsatisfactory pulp is obtained. Rawling showed, however, (P. T. J., April 21, 1927) that if a salt of a weak acid such as carbonic, silicic, boric, phosphoric, etc., is added along with the caustic soda, corrosion is greatly reduced and the quality of the pulp is not affected. This is simply a case of regulating the pH value of the cooking liquor by means of a buffer salt.

Accurate control in the washing of the pulp is also of great importance. If lime or other alkalis are left in the pulp, sufficient alum must be added to the beater to neutralize the alkali as well as to precipitate the sizing. Likewise, if the pulp is too acid the sizing may not be properly precipitated. Washing until the pulp is near the neutral point will elimintae these difficulties. This is particularly important when slush pulp is used. That the importance of control is realized is shown by the fact that in some mills pH value is one of the specifications for pulp. When white water is used for washing pulp, the final pH of the pulp will of course depend on that of the white water.

Control of acidity and alkalinity is probably of greater importance in the precipitation of the sizing than in any other step of the paper making process. Before the introduction of hydrogen ion control, an excess of alum over that really needed was almost universally used. In many cases the excess was over 100 per cent. This resulted not only in a great waste of alum but, in cases where the excess was large, in the production of a paper of inferior quality. Too much alum also causes corrosion of the metal parts of the beater, paper machine and calender rolls, and may give serious trouble in dyeing and coating.

It is impossible to give any optimum pH value for the sizing operation, as this value is affected by many different factors. It is known that some mills obtain best results at pH values ranging from 4.2 to 5.4 but is necessary for each mill to determine its own optimum. After this is done, it is a simple matter to maintain this optimum continuously. The pH of the beater is also of importance when the white water is re-used. W. G. MacNaughton, in a report of his visit to more than sixty paper mills throughout the country, states "The use of hydrogen ion indicators is becoming general as a material aid toward uniformity of sizing as well as economy in the use of alum. It is becoming recognized that many apparently unexplainable changes in the product can be traced to variations in the hydrogen ion concentration of the water and stock."

It is also highly important that the pH of the machine water be checked frequently. Unless the pH of the added water is controlled, this addition may change the pH value of the machine water very greatly and result in unsatisfactory sizing.

It is well known that difficulty is often experienced from pitch sticking to the wire, press rolls and felts, especially in the summer time. Campbell (THE PAPER INDUSTRY, Feb., 1927) studied this problem and found first that unless the water used contained sufficient lime or other alkali to give a floc with alum, the pitch accumulated in the white water system just as if no alum had been added. In his experiments, he first added lime to the sulphite stock in the decker chest until the water had a pH value of 8.5. He then added alum to give a pH value of 5.6. As the stock went through the machines, the pitch gummed up the press rolls. By adding additional alum until a pH of 4.3 was obtained, the stickiness gradually disappeared from the press rolls. He concluded "that the acidity of the stock was an important factor in causing the formation of pitch on the press rolls." This means that the pH must be accurately controlled to prevent this difficulty.

Control of pH is of just as great importance in sizing with glue and other materials and in sizing with rozin.

Filling, Coating and Coloring

The pH value is an important factor in filling, coating and coloring. Roschier (Papierfab. 24, 1926) showed that fillers are retained partly mechanically and partly as a result of the precipitation of rosin and aluminum hydroxide. The pH has a great influence on the retention of fillers. The retention increases rapidly from pH 4.0 to 5.6 but remains constant between 5.6 and 7.0.

In the manufacture of satin white and blanc fixe, proper pH is unquestionably the most important factor. Blanc fixe has long been regarded by some as superior to satin white as far as covering capacity and cost is concerned but heretofore difficulty has been encountered in securing a material with the necessary fineness and smoothness. Accurate control of pH has overcome this difficulty.

It has been shown by many different workers that the amount of dye retained by fibers of different kinds and also the shade obtained depend to a great degree on the pH of the beater furnished. This is undoubtedly one important reason why difficulty is often experienced in matching shades in different lots of paper.

Water Purification.

The quality of water available is often a grave problem for a paper mill. A water of uniformly good quality is a great asset, as it will eliminate difficulties throughout the process. In cases where purified water cannot be obtained, many mills have found it necessary to put in their own purification plants. There are few, if any, waters in the purification of which pH control cannot be advantageously applied. This control is of most importance in the coagulation to remove color and turbidity. Coagulation takes place best at a definite pH value, this value being different for different waters depending on the color, turbidity, natural alkalinity, buffer content, temperature of the water, change in source of supply, etc. The optimum for waters in one state may vary from pH 4.2 to 7.6. It is therefore necessary to determine the optimum for each individual water.

White Water

Another point at which pH control is of value is in the recovery of valuable materials from the white water. According to conservative estimates, the loss per year of valuable materials in white water throughout the United States amounts to about $25,000,000. It is also estimated that by proper recovery methods, this loss can be reduced to less than $5,000,-

000. As salvage of fiber and filling materials from white water is dependent on coagulation and settling, just as in the case of fresh water purification, the importance of pH control is apparent. Some mills are obtaining good results at pH values varying from 4.2 to 5.0 but, just as in fresh water purification, no definite optimum can be given, as it will vary for different mills.

In conclusion, we do not wish to give the impression that pH control is a panacea for all the papermakers' troubles. When this control method is applied, however, it does decrease the difficulties experienced to a remarkable degree.

Continuous Chemical Reclaiming in a Modern Soda Pulp Mill[1]

Sectional View of Recausticizing Plant of Canadian Cellulose Co.'s Plant Showing Wagner Furnace

By A. ANABLE
Engineer, The Dorr Company, Inc.

A PAPER dealing with the development of a suggested arrangement of equipment for carrying out the recausticizing operation at a soda pulp mill on a continuous basis was read at the annual meeting of T. A. P. P. I. last February by C. L. Knowles, of the Dorr Company. Continuous lime slaking and mud reburning were also discussed insofar as they applied to the other operations in the process cycle. Since that time an installation very similar to that described by Mr. Knowles has been put into operation at the soda pulp mill of the Canadian Cellulose Company, Cornwall, Ont., and Mr. Tomlinson, general manager of that company, has very kindly granted us permission to describe his layout before this association.

The Canadian Cellulose Company is associated with the Howard Smith Paper Company, and its new mill at Cornwall has a capacity of 60 tons of soda pulp a day. Full capacity operations have not as yet been carried out for any length of time, since this company has encountered the usual initial difficulties which are met when an entirely new plant is first stated up.

We therefore wish to preface our remarks on this plant by stating that while the operating figures given in this paper have been obtained in practice at Cornwall, they do not represent what is being obtained consistently at this plant at the present time on account of the frequent interruptions which have occurred due to changes in the lime handling system, kiln operation, boiler plant, and other parts of the mill. The Canadian Cellulose Company and ourselves feel confident that the encouraging figures obtained with the causticizing plant and mentioned in this paper will be consistently maintained just as soon as continuous operation throughout the entire mill is secured.

Use of the Wagner Furnace

The black liquor is concentrated in a multiple effect evaporator to 35° Bé. and is then burned and melted in a Wagner furnace. The furnace gases pass through a dust collection chamber on their way to a waste heat boiler, the steam generated in this manner being used in the multiple effect evaporator for black liquor concentration and for other purposes in the mill. A gas scrubber washes the products of combustion of the Wagner furnace with weak liquor from the mud washing step, this liquor after passing through the scrubber flowing into the smelt dissolving tank under the discharge spout of the Wagner furnace. The soda ash liquor produced in this tank under the furnace is continuously pumped to the causticizers where it is causticized with lime in the usual manner.

Lime Burning Equipment

The bulk of the lime is secured from the reburning of the mud while losses are made up with milk of lime from the bleach plant. Under the present arrangement the kiln discharge is fed directly into a slaking pan, after first passing through a Dorr classifier for removal of grit and unburned core. This arrangement has not been entirely satisfactory, because in the first place the kiln has not discharged at a uniform rate; and secondly because the kiln discharge contains some lumps not completely burned which should be removed ahead of causticizing. Plans have already been made to rearrange the lime handling and slaking system and when put into effect this will provide a uniform rate of lime flow to the causticizers and classification of both reburned and make-up lime for removal of grit and core. At the present time the grit and core removed from the make-up lime by the classifier amounts to around 400 lb. a day, and this will presumably be very much increased after all the lime is classified. The reburned lime runs about 80 per cent CaO, while the make-up lime contains 85 per cent CaO and 2 to 3 per cent MgO.

Cauticizing Operation

Causticizing is carried out in two 7 ft. dia. x 8 ft. deep Dorr Agitators arranged in series with the slaking pan, the soda ash liquor and lime flowing through them continuously and being given a 2 hrs'. period of detention to insure high causticity. The agitator tanks are equipped with steam heating coils. Causticizing is carried out at 12° Bé. The temperature is about 72° C. in the first agitator and 78° C. in the second, while the discharge from the causticizing operation will have a causticity of 90 per cent or better, 91 per cent having been obtained at times during the initial plant operation.

Use of Dorr Thickener

The slurry from the last causticizer flows by gravity into the first of two Dorr two-compartment tray thickeners installed in covered steel tanks 20 ft. dia. x 10 ft. deep. The clear caustic liquor overflowing this first thickener is at 12° Bé. with an average causticity of around 92 per cent. The temperature is an average of 71° C. and the settled lime mud is removed by a Dorrco diaphragm pump at 60 per cent moisture. The clear caustic liquor goes to storage ahead of the chip digesters, while the mud is mixed with fresh wash water and filtrate and resettled in the second thickener.

The weak liquor overflow from this second thickener is at about 3° Bé., 95 per cent causticity, and 31° C., and, as previously stated, is used for dissolution of the Wagner furnace's molten discharge, after washing the products of combustion in the gas scrubber. The settled and washed mud is removed by a Dorrco diaphragm pressure pump at 60 per cent moisture and fed to an Oliver Continuous vacuum filter for a final wash and dewatering.

The cake from the filter contains about 30 per cent moisture and has a caustic soda content not exceeding ½ per cent. The filtrate and wash water applied on the filter are used for washing purposes in the second thickener. The cake is conveyed by a screw conveyor into a rotary kiln, the screw being encased in a water cooled housing in order to better resist the action of the kiln gases.

The rotary kiln used for lime mud reburning is of the bonnet type. The shell is 100 ft. long and 7 ft. in diameter, being lined in the usual manner with fire brick. Oil is used as fuel in the kiln.

This installation is believed to be of interest in that continuous processing is carried out to a degree not frequently the case in mills of this type. In addition to continuous causticizing and lime mud washing, modern continuous equipment is utilized for black liquor evaporation, incineration, and smelting, lime mud dewatering, and mud reburning.

Before the Superintendents' Association last May in Richmond, Va., we discussed a suggested causticizing layout for use at sulphate mills. Since that time the first installation of a Dorr thickener in sulphate mills has been made at Thilmany Pulp & Paper Company, Kaukauna, Wis. This mill has a capacity of 90 tons of kraft pulp a day, causticizes from 65,000 to 72,000 gallons of 20-22° Bé. green liquor a day, and, after strong caustic liquor decantation, washes the lime mud twice before it is filtered and reburned. Only one thickener is being used at present for the second mud washing, while causticizing; strong liquor decantation, and first mud washing are still carried out in twelve 10 ft. x 14 ft. batch causticizers and settlers of the usual type.

[1] Read at a meeting of the Technical Association of the Pulp and Paper Industry in the Chemical Exposition, New York, Sept. 28, 1927.

Washing the Mud

Causticizing is practiced in 8,000 gal. batches, the lime charged into the cages being either 85 to 90 per cent CaO burned lime from St. Genevieve, Mo., or reburned lime from a rotary kiln, or else a mixture of new and reburned lime. The first strong liquor decanted runs about 20° Bé. The settled mud, amounting to 45 tons a day, is first given a weak liquor wash with 1 to 2° Bé. liquor overflowing the Dorr thickener. The 7 to 8° Bé. liquor which is decanted after this first wash is used for smelt-dissolving in the green liquor tanks below the furnaces.

The mud is then given a second wash with fresh water and is pumped to the Dorr thickener. From this point on, the operation is continuous. The thickener overflows 1 to 2° Bé. liquor which as previously stated is used for the first mud washing, and a Dorrco diaphragm pump continuously removes the washed mud and feeds it to a continuous vacuum filter at a consistency of around 60 per cent moisture. The filter cake is burned in a continuous rotary kiln and returned to the batch causticizers. The Dorr thickener is of the tray type having two superimposed settling compartments in a steel tank 25 ft. dia. x 10 ft. deep. When handling 65,000 to 72,000 gals. of liquor a day and 45 tons of lime mud the overflow liquor is crystal clear at all times.

The Thilmany Installation

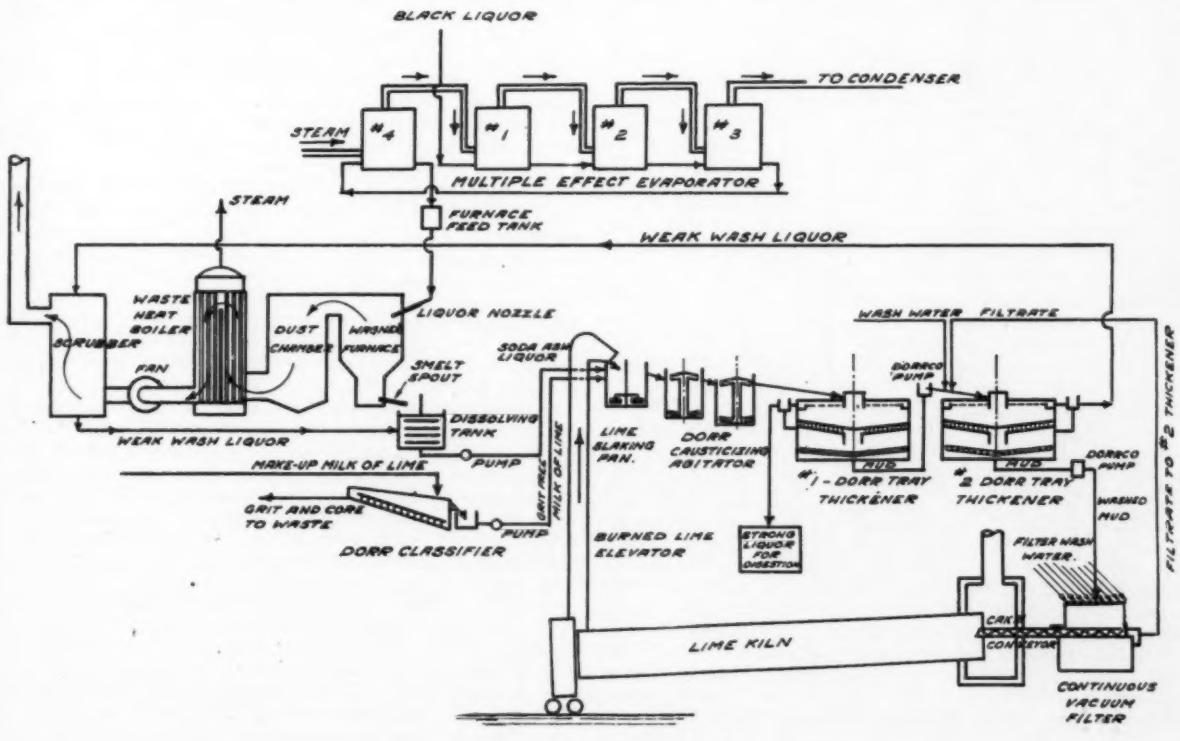
The Thilmany installation is believed to be of particular interest for several different reasons. In the first place, the addition of this single Dorr thickener has relieved the existing batch tanks of one function, the second mud washing, and has accordingly permitted the cycle of batch tank operation to be completed in a shorter period of time. This amounts to proportionately increasing the capacity of the entire causticizing department. In the second place, continuous mud discharge is maintained directly ahead of the filter which not only assures a uniform feed to the filter at the proper consistency, but also a uniform feed of cake to the kiln which assists in the maintenance of a high kiln efficiency and simplifies burning control. In the third place, it has been demonstrated conclusively that continuous Dorr thickeners can be operated satisfactorily in conjunction with intermittent causticizing and settling equipment. This means that batch causticizing plants, like the original one at Thilmany, may be gradually changed over to continuous ones, like Canadian Cellulose, by first putting the various mud washing and decantations on a continuous basis with the Dorr thickeners and finally replacing the batch causticizers with Dorr continuous agitators and a continuous lime slaking layout. The cost of remodeling the plant may thus be distributed over a period of several years, and certain of the advantages of the ultimate continuous plant may be obtained just as soon as the first equipment replacement is made.

New Two Hundred Ton Kraft Mill in Sweden

Marma Sagverks Aktiebolag (Marma Pulp Company) of Soderhamn, Sweden, has let contracts for the construction of the largest sulphate pulp mill in Scandinavia. This new mill will have a capacity of 200 tons of pulp per day and will follow the latest developments in pulp mill practice.

The sulphate process found favor in Sweden, Norway and Finland immediately following its introduction at Danzig, Poland, by C. F. Dahl in 1884, whereas it was not introduced on this side until 1907 at East Angus, Quebec. The developments in this process since then have been so important that early this year Marma sent its chief engineer, K. S. Moe, to the United States and Canada to study the latest methods. Certain modern methods successfully used in North America have accordingly been adopted on the basis of Mr. Moe's investigations.

Continuous processing will be used in the recausticizing of green liquor and the subsequent handling of lime mud. Continuous causticizers, lime slakers, and thickeners are being supplied by the European associates of the Dorr Company of New York and continuous vacuum filters for dewatering lime mud will be furnished by the Oliver Continuous Filter Company.



DIAGRAMMATIC FLOW SHEET OF SODA MILL CHEMICAL RECLAIMING DEPARTMENT.

The Determination of Moisture in Sulphite Pulp[1]

By CHARLES DRAZ

THE moisture content of pulp is usually determined by weighing a suitable sample (about 5 to 10 grams) into a weighing bottle and heating to constant weight at 95 to 105° C., the difference in the weight of the sample before and after heating being due to the water evaporated. This is the method recommended by Jentgen (2), according to whom the operation requires about one hour. As a matter of fact, complete drying requires from five to six hours; and moreover, the extremely hygroscopic nature of dried pulps makes the weighing very difficult and liable to appreciable error unless it is carried out with exceptional care.

It is therefore not surprising that attempts should have been made to devise quicker and more accurate methods. It has been proposed to heat the pulp in presence of a hydrocarbon boiling above 100° C. The water is entrained by the hydrocarbon during the distillation, and the distillate is collected in a suitably graduated tube where the water readily separates from the hydrocarbon and the volume can be read directly.

Dr. E. Schlumberger's method (3), with which we shall deal in the present article, is based on the same principle; but in order to avoid the disadvantages of easily inflammable hydrocarbons, he makes use of the less dangerous acetylene tetrachloride, which behaves in the same way as the hydrocarbons as regards entrainment of water during distillation. The method is essentially an adaptation of the one used by Tausz and Rumm (4), for the determination of moisture in food products such as wheat and rye flours, lentils, cocoa, butter, etc.

The device shown in Figure 1 consists of a 700 cc. round-bottomed Jena flash (a), the neck (b) of which is about 5 cm. in diameter and is ground to receive the column (c). The latter is connected (without the use of rubber) to a vertical condenser placed so as to deliver the condensate into the receiver (d) (e) (f) (g).

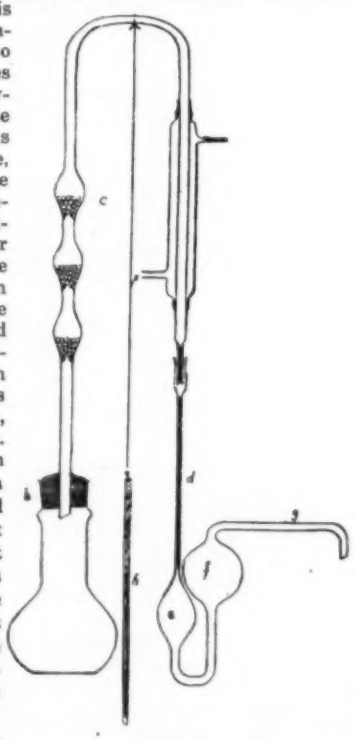


Fig. 1

Before starting the distillation, sufficient acetylene tetrachloride is placed in the bulb (e) to ensure that the water which distills over will all collect in the graduated tube (d). The latter is about 20 cm. long and has an internal diameter of about 3 mm., its capacity is about 2 cc., and it is divided into 0.02-cc. divisions. With this apparatus the amount of water distilled can easily be estimated to 0.005 cc. The amount of pulp to be used will naturally depend on its moisture content, which is generally known approximately.

The determination is carried out as follows:

The required amount of pulp, cut up into pieces about 4 by 5 mm., or into strips 4 mm. by 50mm., is introduced into flask (a), and enough acetylene tetrachloride is added to make the sample float freely. The flask is then carefully heated with a naked flame until the acetylene tetrachloride is boiling briskly. The flame is then raised so as to distill about 80 to 100 cc. in ten minutes. Care must be taken to prevent the pulp from sticking to the wall of the flask, and darkening of the pulp indicates that it has been overheated. A plate or sheet of asbestos (h) is placed between the distillation flask and the receiver to prevent the latter from being heated by the flame.

Most of the water distills over with the first fraction of acetylene tetrachloride. The last traces of water render the

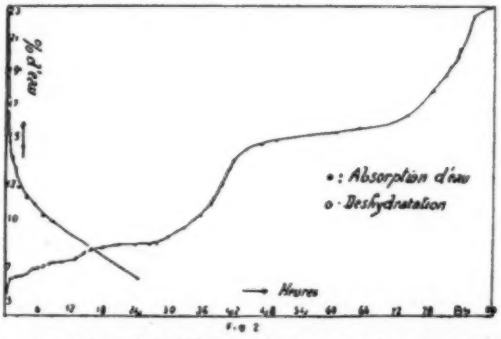


Fig. 2

mixture turbid, and distillation should be continued till it has cleared completely. The separation is complete in a relatively short time and the whole operation requires only about 30 minutes.

The acetylene tetrachloride remaining in the pulp is recovered by pressing in a hand press. The pressed pulp is kept in a well-stoppered bottle, and when a sufficient amount has accumulated, the residual tetrachloride is recovered by distilling with steam, separating from the condensed steam, drying over calcium chloride and finally filtering. If the recovered tetrachloride contains an excessive amount of dissolved fats and resins, it must be redistilled. It is also advisable to determine if the tetrachloride is acid, and to neutralize it, if necessary, by adding solid caustic soda.

It should be noted that the method has been compared with the ordinary method of drying at atmospheric pressure at 100° C. and also with drying under an absolute pressure of 16 mm. of mercury in presence of phosphorus pentoxide, and absolutely concordant results were obtained.

Dr. Schlumberger did not content himself with using the method for the mere determination of the moisture content of pulp, but also applied it to the study of the absorption of moisture by pulp. Strips of pulp 5 mm. wide by 50 mm. long, containing 5.3 per cent of moisture, were placed in closed vessels at 40° ± 0.5° C., over vessels containing pure water. The increase in moisture content was determined at regular intervals by taking an average sample and analyzing by the above method. The rate of dehydration of the saturated pulp was also determined in a similar manner.

The results are shown graphically in the two curves of Figure 2, which bring out very clearly the difference between the absorption of moisture by the pulp and its dehydration.

In addition to the scientific interest of such observations, we consider that Schlumberger's method can be very useful in the control of sulphite pulp for use in the manufacture of viscose.

[1] Translated from **Revue Universelle des Soies at des Soies Artificielles** il, 485, 487, June 1927, by A. Papineau-Couture.

(2) Laboratory handbook for the rayon industry **(Laboratoriumsbuch für die Kunstseide-Industrie)**, 1923, p. 40.

(3) **Papierfabrikant** 24, 783-785 (1926).

(4) **Zeitsch. f. angew. Chem.** 39, 155 (1926).

Sulphur Dioxide for Sulphite Liquors

In the new process of preparing sulphur dioxide for making sulphite liquors, patented in German Patent No. 440,337, the pyrites in the finest state of subdivision, is blown into a combustion chamber and burnt into sulphur dioxide by means of a regulatable amount of primary and secondary air. This process possesses the advantage that the theoretical quantity of air suffices for the purpose and hence the undesirable excess of oxygen, which leads to the formation of sulphuric acid, is avoided.

Practical Helps for the Mill Man

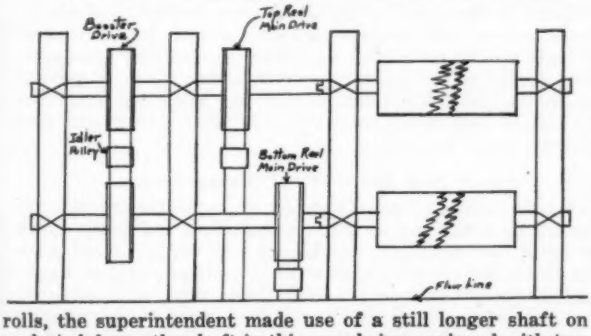
A Handy Measuring Stick

A SPECIALTY mill experienced some difficulty in the slitting of their products to proper widths, since customer's orders covered a considerable range in width of roll. There was always tendency for error in the reading of the scale common to most paper machine operators because of the many changes being made. To eliminate any chance for error, a complete set of individual rules, one for each width of roll sheet prepared, was made from high grade maple sticks approximately 1¼" in width, and ¼" thick. Each of the maple sticks after being graduated for the width of sheet for which it was to be used as a measure was shellacked and labeled. For example: One stick was marked 15" Bag No. 1 Machine. One set of these rules consisted of 24 individual sticks arranged on a rack convenient to the winder end of the machine. The rack was equipped with a device which locked the rules in position on the rack eliminating any tendency of the rules from falling because of vibration. Such a set of measuring sticks has reduced the tendency for error in the reading of a scale, since it is only necessary to make use of the rule for the particular width of roll in question. Likewise, arranged on a rack convenient to the operator, they are neat and always ready for use.

Paper Machine Reel with Booster Drive

AN ORDINARY two drum reel, part of the equipment of a large board machine, gave one superintendent much trouble in the production of rolls of desired hardness. Each reel drum was driven from a short extended shaft from the center of the drum, the shaft being equipped with clutch and pulley. A line shaft located in the basement furnished motive power to the individual reel shaft through a link-leather belt.

To overcome the difficulty relative to the production of hard



rolls, the superintendent made use of a still longer shaft on each reel drum, the shaft in this case being equipped with two pulleys rather than one. Likewise, the two outer pulleys, one on each side of the two shafts were properly aligned and connected with a link-leather belt, the belt maintaining proper tension through the use of an idler pulley. The inner pulleys, one on each of the two drum shafts, were driven as previously from their corresponding driver pulley on the line shaft in the basement. Such a drive developed, through the outer set of pulleys, a "booster" for either of the primary drives of the winder. If the upper of the two drums is winding, the clutch of the lower drum shaft being disconnected from the drum permits the power applied to the lower drum shaft to be distributed through the auxiliary or secondary drive to the drum shaft of the reel above, and vice versa.

The increased power supplied to the regular drive of a reel in this manner increased the tension of the paper being wound and thus eliminated the problem from soft rolls. Rolls of large diameter and often weighing three tons or better are now wound to a uniform hardness through the use of this simple drive arrangement.

Pulp Stock Cutter for Wet Machine

The K-T sheet cutter is a mechanical device located in front and above the couch roll of a wet machine to automatically cut the pulp stock as it is carried by the felt of the machine into uniform and conveniently sized sheets.

The cutter consists of a shaft of sufficient length to extend across the vat of the machine and of sufficient strength to support two cutter knives. Each knife is attached to the shaft through a knife holder which is designed to permit adjustment of the knife. This arrangement allows the knife while in cutting position to rest lightly on the surface of the

felt. The two knives are located end to end with only a small clearance between but they are placed on the shaft 180° apart; that is, one knife is located directly opposite to the other insofar as the shaft is concerned. The blades are of light steel and are attached to the holders through four studs, adjustment being obtained through slots in the knives. The knife edge of each blade is notched to prevent the pulp sheet from following the first press felt of a two press Rogers wet machine.

The cutter device is supported on stands, one being located on each end of cylinder vat, and is driven through a belt from any convenient squeeze roll. A cone pulley is used for both driver and driven pulleys, thus permitting variation in speed of cutter. It is necessary that the cutter be operated at a speed slightly faster than the felt travel to permit the separation of the stock into sheets. Likewise, by varying the speed of the cone pulley drive, it is possible to alter the length of the sheet cut. Since each knife is of a length to handle approximately one half the width of the felt, and since it does its cutting across the travel of the felt, it is necessary to deckle the mold at the center, thus forming two continuous pulp strips on the felt of the machine which are cut into sheets by the K-T sheet cutter.

This device was developed at the Northern Paper Mills, Green Bay, Wisconsin, by Mr. W. A. Kelly, manager of the plant, and Mr. Timmerman, superintendent. It is being manufactured and distributed by the Green Bay Foundry & Machine Works of the same city.

Cellophane Now Waterproof

The Du Pont Cellophane Company announces a new type of Cellophane known as Moistureproof Cellophane. The new product has unusual protective qualities in both retaining the moisture content of the article around which it is wrapped, and also keeping out the moisture from the air when this is desired.

In the baked goods, candy and food products fields as well as in other fields, it is believed that the new product will enjoy large usage.

Why Safety Is Worth While[1]

BY D. C. EVEREST

President, American Paper and Pulp Association, New York City

IT is a pleasure to me to meet with you today and discuss the subject "Why Safety Is Worth While." You are all familiar with the whole safety movement and many of you, from the earliest time of organized effort along that line. You know why safety is worth while and you have helped to increase its value to your fellow men and the concerns which you represent. You know the game and you do not need figures to prove it. I have been asked to discuss it from the viewpoint of management and as one who has watched the work of the National Safety Council and particularly of the Paper and Pulp Section, and of individuals in this section who were lending their efforts to this work before the formation of this section, I desire to extend my sincere congratulations on the good you have accomplished for the paper industry. To my mind, you represent the Technical Association of Safe Practice for the Paper Industry. You represent one of the pioneer sections of the council and that seems but natural, since the paper industry itself is one of the pioneer industries of this country.

With the rapid development of the business, it was recognized over fifty years ago that there was need for association work in the industry and consequently there was formed at Saratoga Springs, N. Y., the present American Paper and Pulp Association, which I have the honor to represent. I believe there is only one other trade association which has been in continuous existence for a longer time. Fifty years or perhaps we may say twenty-five years at the most, represents the development of the so-called industrial age in this country. People engaged in the industry were among the first to take up co-operative work as an association, and this section of the National Safety Council was one of the first to vigorously enter into safety work and apply it to its business. It has paid the industry to do it, and the best evidence of that fact is that those who first started in the work have been the most enthusiastic for its continuance.

Tangible and Intangible Benefits

In considering whether it is worth while, I have always separated the subject into the two groups of tangible and intangible benefits and I am sure that if it were possible to satisfactorily measure the intangible benefits, they would far outweigh those which we are able to compute in figures. For instance, we know that we are making definite savings in the matter of premiums on compensation insurance. But I think too many were slow in taking up intensive safety work because they were not able to see in this one feature sufficient saving to warrant any great expenditure along safety lines. It is the same class who attempt to operate plants with out-of-date machinery, limited personnel in both operating and accounting departments and boast of the fact that they do all their office work with one or two men and a stenographer. They only come to realize the necessity of safety work, of adequate machinery and ample personnel when the economic urge of business competition forces them to either get in line or get out of business. In our industry, I think there has been greater advancement in the art of manufacturing since the formation of the Technical Association ten or twelve years ago than there had been in any previous forty or fifty years period.

It may be interesting to note that expansion in output per person in all industry has been particularly large during recent years, amounting to 11 per cent in the two years from 1923 to 1925, and to 41 per cent in the six years from 1919 to 1925. Practically the same increases were recorded for the paper industry. The increasing of speed, the addition of new and complicated machinery has revolutionized the productive capacity of mills and yet with this continual "speeding up," one would naturally expect increased hazards and increased accidents, but such has not been the case. There have been fewer accidents in relation to productive output and to the number of men employed than ever before. It is the work of the men engaged in safety work, both in our own industry and in the machine building industry, who have made such a condition possible. You have in your line, kept pace with the development of speed. If we had not received the benefit of your efforts, I can easily conceive of an highly hazardous maufacturing business instead of the comparatively safe and increasingly safe operation which we have today. It has been the co-operative work of the so-called practical men, the technical staff and the safety organizations which have made these things possible.

It must be evident to every one that with less accidents there has been greater continuity of employment for skilled men and labor familiar with the operating conditions in every plant. Labor turnover, which is one of the most expensive things in plant operation has been reduced. Safety organizations in plants have awakened everyone to the necessity of seeing what is going on about them and in consequence many of the leaks and wasteful practices which have been going on for years have been stopped. From my own experience, I know that there has been added interest on the part of every employee to stop waste, improve plant conditions and contribute to the general welfare of both employee and employer.

One of the outstanding things which I think has done more to benefit the management and therefore the business itself, is the fact that safety work has brought the management, the operating staff and the employees together in conference. This has built up a better understanding, a better situation generally than could have been done in any other way. It has provided a meeting place for the discussion of all plant and personnel problems. I think every manager knows his men better and the men have a better understanding of the management and its policies.

Protection Essential from Any View Point

Safety work in a plant must be seriously considered. The management and all concerned with it must show real personal interest. The safety and health of men are at stake, and despite the criticism made several years ago that industry was not concerned with the sacrifice of life or limb and were only interested in what a man might produce, I am convinced that present day operators are deeply interested in their employees and that they recognize that their highest duty is to expend every effort for their protection from accident or disease. If there are today selfish men in charge of plants, even they, as well as those who have a deep human interest in their men, must realize that from an economic standpoint they cannot afford to sacrifice men either through accident or illness. Take the situation from any angle you may view it, you cannot afford to provide anything except the best in the way of protection.

A New Era in Plant Management

Safety work and the discussion of its various phaces has opened up a new era in plant management and every factor which it has developed has been worth while. It has made for closer relationship, allayed suspicions, provided a healthy and wholesome atmosphere in which to work, eliminated the suffering of the employee and the consequent worry and mental distress on the part of himself and family. It has educated those who have come in contact with the work in health and sanitation and encouraged the provision of nursing service, brought about the adoption of group insurance, both Life and Health and Accident. It has brought home to each man the necessity of further protection in the way of life insurance other than that provided under group polices. It has been the beans of contact and, through discussion the point of origin of some of the finest things which we have in our industrial life today. It has, in fact, accentuated every good thing for the benefit of those who, through their daily work, contribute to welfare and upbuilding of the industrial and social life of this country.

I am pleased with the fact that as the industry which we represent, has been a pioneer in the development of business relations in so many ways, that it has also taken such an active part in the work of the National Safety Council and has shown other industries the way in many of the things

[1]Presented at Paper and Pulp Section meeting of National Safety Council Congress, held at Hotel Stevens, Chicago, September 28, 1927.

which go to make up a safe and efficient manufacturing business in this great industrial age of hustle and bustle, which, if left to its old policies might have resulted in much suffering and misery.

You have made people think. You have made them think about themselves, their families and their fellow men. No one can think and think seriously of the program as outlined by such an organization as this, without having a kindlier feeling for those about him. Any program which includes the idea of protection to others and watchfulness and care in your own doings, cannot help but make for better relationship with one's associates and a happier and better world in which to live.

In conclusion, I wish to again congratulate you, who have made this condition possible. You have made management and operating force both understand that the safety program is worth while and that greatest thing in industry today is the elimination of suffering and waste of human life.

Use of Microscope for Examination and Photography of Paper[1]

BY L. V. FOSTER
Bausch & Lome Optical Company

THE problem of making a permanent record of the surface texture of paper at low magnifications such as 10X or 20X has to be solved by the application of the microscope. Paper is practically opaque and since light passing through it is not sufficient to illuminate its surface, the orthodox method of illuminating the object under view in the microscope is not adaquate. The paper surface must get its illumination from above. The examination of metal surfaces has been made, for many years, by the use of the microscope equipped, for furnishing light on the metal surface, with the so-called vertical illuminator. Vertical illumination for this purpose

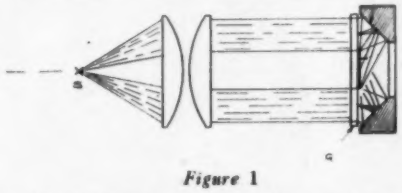


Figure 1

has been obtained principally by interposing between the microscope objective and eyepiece a thin transparent piece of glass set at an angle of 45° to the axis of the microscope. Light from an artificial source is directed on this glass which serves as a reflector, some of the light being reflected toward the metal surface, and the rest of the light being lost by passing directly through the glass. There exists on the surface of etched metal specimens a high degree of contrast, due to polished crystals and etched surfaces lying between crystals, also differences in constituents of the crystals. The difference in level of the etched and the polished areas is very slight and in order to bring out the structure which characterises the metal, vertical illumination is used.

The surface of paper is not at all like that of metals and differs from it in that there is very little contrast between the fibers and that there do exist differences in elevation of the constituents in the paper. In fact, the surface of a piece of paper when looked at through a microscope does not at all resemble a surface but looks more like a thick layer of straw or hay shaken up and then loosely matted. It is this difference in surface texture in different papers which it is desired to record by means of the microscope. In order to make these fibers visible, and to amplify contrast, illumination is required which is termed by the microscopist dark field illumination. Dark field illumination is obtained by directing light on the object in such a manner that no direct light but only light reflected from the object or diffracted by it reaches the eye. A common example of dark field illumination is to be observed in any motion picture theatre. Dust particles floating in the air are visible within the beam of light emerging from the projector but are invisible under ordinary room illumination.

It has already been mentioned that the fibers in paper show very little contrast when its surface is examined by a microscope. A special microscope for examining paper must amplify this contrast in order for it to be useful. Contrast can be increased if the illumination is directed on the paper in such a way as to cause only light reflected and diffracted

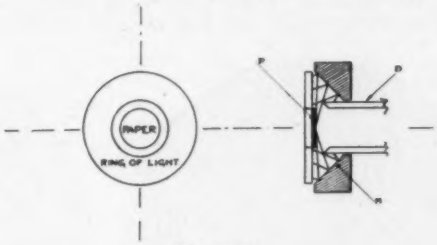


Figure 2

from individual fibers to reach the eye. The eye, or the optical system which aid the eye in forming an image of the surface of paper, is directed approximately perpendicular to the paper, and in order that it shall not receive direct illumination, the light must be directed upon the specimen under oblique incidence. This kind of illumination, if comng from one direction only, will cause particles which are elevated to cast shadows and the shadows practically veil other portions of the object. If the oblique illumination comes from all sides at once, there would be no shadows but all elevated particles would get illumination from all sides. On the other hand, the spaces between these elevated particles, the depressions or cavities in the paper surface will receive little or no illumination and therefore a high degree of contrast is achieved. The microscope to be described employs illumination of this kind with light converging onto the object from all sides.

Oblique Illumination and How Obtained

A microscope embodying illumination of this kind was described before this society in 1926 by Mr. L. A. Jones. The present instrument represents a reduction of his essential principle to practice and includes some improvements.

In Mr. Jones' instrument, a bank of automobile headlight bulbs served as source of illumination. This would be troublesome in case one of the lamps burned out, for they were connected in series to run on a regular 110 V line. In the

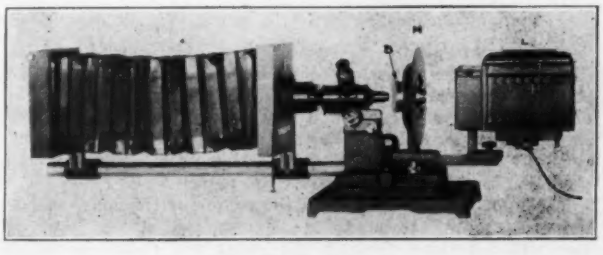


Figure 3

present instrument, a single source of light is employed together with optical means, about to be described, for bringing the light onto the object in the desired manner. Figure 1 shows how the oblique illumination is brought down on a paper surface through 360°. The use of one single lamp and a condenser with the lamp focused for infinity produces even illumination at the ground glass (G). This ground glass is employed for the purpose of diffusing the light and to act as a ring source of light. In this figure the piece of paper to be examined is represented by (P); (M) is an element of a mirror inclined 45° to the paper surface. A beam of light

[1]Read at a meeting of the Technical Association of the Pulp and Paper Industry in the Chemical Exposition, New York, September 28, 1927.

coming from the condenser illuminates the ground glass, every point of which acts as a self-luminous source which sends its own cone of light to the reflector and in turn to the paper. The mirror is a frustum of a 90° cone and the light from the ground glass is reflected by it onto the paper. If we fix our attention on any one point of the ground glass we see that it sends out rays of light which are reflected by the cone and which illuminate every point in the surface of the paper. If we concentrate our attention on one point on the object, it receives light coming from many points in the ground glass source.

From this analysis of the light which strikes the paper surface, it can easily be seen that none of it is directly reflected into the microscope which is placed perpendicular to the plane of the paper and includes an angle of 10°. Thus, what is seen through the microscope will be an image of objects formed by diffracted light or reflected light from surfaces not perpendicular to the axis of the microscope and thus not in the plane of the paper but from such edges as those of fibers in the surface of the paper.

The light which comes from the center of the condenser is not used and, in fact, has to be cut out so that strong illumination will not shine through the paper and reduce contrast. The paper has to be held flat and in the proper plant with reference to the conical mirror. Thus, a paper holder is made which acts as a stop for the superfluous light and is mounted in a hole cut in the ground glass. The mount for the paper is a glass disc on which the paper is glued. This glass disc is placed in a cup form holder and inserted into the mount in the center of the ground glass. The glass mounts are inexpensive and provide a ready means for filing mounted samples. The samples can be marked on the back before being glued to the mount or if they are not valuable for reference they can be washed off and the mount used repeatedly.

The oblique illumination of a paper object from all sides is not the full requirement for depicting the surface texture of the subject. Experience shows that if the illumination angle, confining ourselves to any plane perpendicular to the plane of the object, is made less, the contrast of the paper fibers is increased. In other words, if we cut off more of the top of the conical reflector and prohibited more of the vertical light from reaching the specimen, the contrast would be enhanced. The ability to regulate the quantity of this illumination in this aspect is provided for by inserting in the open end of the conical reflector and concentric with its axis a cylindrical tube diaphragm. (Figure 2) This tube is mounted so that it can be moved to and from the specimen, thereby cutting off more or less oblique light. As the tube is moved towards the specimen, the light which illuminates it becomes more nearly grazing.

Fig. 4—Crane's Bond; 10° illumination; Magnification 20X.

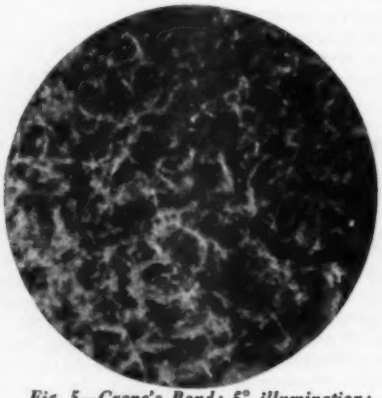


Fig. 5—Crane's Bond; 5° illumination; Magnification 20X.

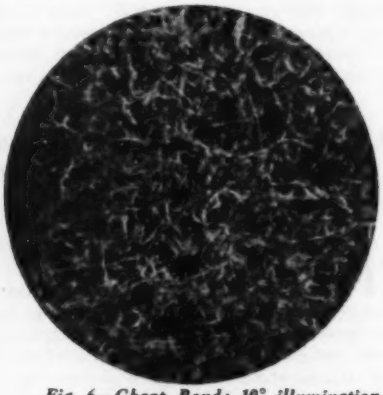


Fig. 6—Cheap Bond; 10° illumination; Magnification 20X.

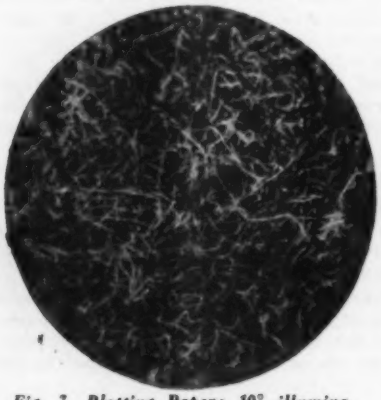


Fig. 7—Blotting Paper; 10° illumination; Magnification 20X.

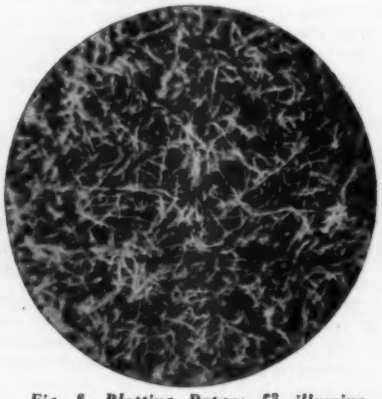


Fig. 8—Blotting Paper; 5° illumination; Magnification 20X.

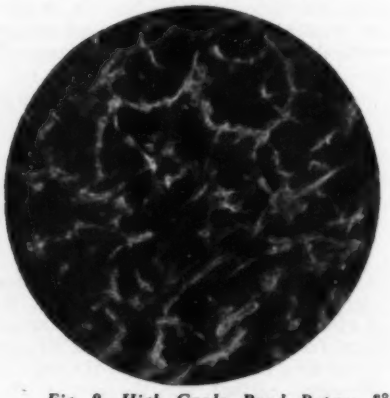


Fig. 9—High Grade Bond Paper; 8° illumination; Magnification 40X.

The usefulness of this light control is to be emphasized as a means for controlling conditions of illumination from time to time. A sample of paper phtographed or examined under different angles of illumination shows entirely different appearances, and if similar papers are examined at different times and photographs made of them under slightly different illuminating conditions they will not look like similar papers. This hollow cone oblique illumination controlled in angle makes positive the duplication of photographic conditions. Furthermore, in different grades and types of paper it is necessary to illuminate with varying degrees of obliquity. Paper which is loosely matted can stand illumination coming from more nearly vertical than paper which has a hard compact surface. That is, the fibers in loosely packed paper do not have the background as close to the fibers as in the hard compact surface paper, and hence do not require the degree of dark ground illumination required in the latter. This difference can best be realized by actual observation of papers with the microscope under description.

Figure 3 shows the complete paper microscope with the camera. The cylindrical tube diaphragm, which has just

been described, can be moved back and forth by means of turning the knurled disc at (D) which is graduated from O to 25°. These graduations mean when the disc is set for a particular reading that the light striking the paper comes from zero to the number of degrees indicated on the scale throughout an angle of 360° completely surrounding each point on the paper. The microscope has coarse and fine adjustment pinions and an auxiliary tube for visual observations. The auxiliary tube is withdrawn from the microscope body tube when photographs are to be made.

The illuminator, from the specimen to the mazda lamp can be rotated in a vertical axis passing through the plane of the paper. This rotation is used if stereoscopic pictures are desired. The specimen and illumination system being rotated through half the stereoscopic angle and a picture made, then rotated on the other side of normal position by an equal amount and a second picture made. From these two pictures positives are made, mounted in a reversed position and when examined through a stereoscope, excellent relief is obtained.

The accompanying photographs, Figures 4 to 9 inclusive, will give an idea of the nature of different paper surfaces under the microscope.

The Coming Power Show

The scope, size and importance of the New York Power Show to be held December 5-10, 1927, promises to be as comprehensive mechanical exhibition for the American manufacturer as has ever been held. The coming Power Show will have over 500 concerns represented, and their exhibits will include machinery for power generation, heating and ventilating, refrigerating for large industries and office buildings.

There will also be outstanding examples of modern machine shop equipment material and woodworking machines and especially noteworthy collection of exhibits of power transmission equipment. Measuring and recording instruments will also play an important part in helping the manufacturer cut down costs in his plant.

The National Exposition of Power and Mechanical Engineering will be held in the Grand Central Palace, a spot that is becoming more famous as time goes on for the housing of important exhibitions.

Finnish Student of Forestry Returns to Homeland

The Finnish government has recently had a capable research representative at the U. S. Forest Products Laboratory in the person of Uno. W. Lehtinen, a member of the state forest service of Finland. Mr. Lehtinen, who completed a three-years' sojourn in the United States with a visit of six months at the Forest Products Laboratory, left recently for Finland to resume his official duties. His studies in the United States, and at the laboratory in particular, were planned to fit him for effective participation in the new government program of forest products research being inaugurated in his native country.

On his arrival in the United States in December, 1924, Mr. Lehtinen went directly to the Pacific Northwest. By the fall of 1925 he had gained sufficient mastery of English to enable him to enroll for the scholastic year 1925-26 in the forest school of Yale University. On leaving Yale he visited, during the summer and fall of 1926, the pulp mills and sawmills of Ontario and Quebec. The winter of 1926 Mr. Lehtinen spent on lumber market studies in New York City, from which city he went this spring to Syracuse University to get the benefit of studies and consultation on the utilization of forest materials. From Syracuse he went direct to the Forest Products Laboratory, where he has familiarized himself with the methods of research on wood and wood products developed in that institution.

Among the things which Mr. Lehtinen has found noteworthy in this country is the absence of forest insurance, a policy which is common in Finland and the other Scandinavian countries to the extent that 50 per cent of Finnish and Scandinavian farmers carry insurance on their wooded lands. Of the various regional fire prevention activities carried on in this country, the Finnish forester was especially impressed by the fire protection work in Pennsylvania, Minnesota and California, which he describes as equalling or surpassing similar activities in Finland and Scandinavia.

Emerson Manufacturing Company Starts Up Again

Among the Lawrence makers of paper-mill machinery, the Emerson Manufacturing Co. has, since the early eighty's, been one of the leading institutions. Its jordans and beaters can be found today in every section of the country where paper is made. After a long and commendable career, the Emerson Manufacturing Co. met with misfortune last February in the form of a fire. With the exception of the office building and pattern houses, everything was wiped out. But thanks to the generous co-operation of the other Lawrence paper-machine builders, production was continued with scarcely a break, all old orders were filled, and new business taken care of just as if there had never been a fire. This, of course, was only possible because all records, drawings and patterns were preserved intact.

Like the phoenix of mythology, the Emerson Manufacturing Co. has quickly risen from its ashes. It is now a larger and better equipped Emerson than ever before in its history. Erected on the unit plan, the new building is a model of all that is newest, best and most enduring in machine shop construction. This daylight plant has windows extending without a break from the concrete base to the roof line. It is constructed of brick and steel sash, and a fire-proof building. There is an electric traveling crane which operates from one end of the building to the other, serving all the machine tools, and loading and unloading cars which run into the building on a spur track. The entire mechanical equipment is of the largest and heaviest type made. All machines are operated from individual electric motors, and all wires and pipes are run underground.

The new Emerson plant was started in May, and was in operation by September 1st. The chief products of the Emerson Manufacturing Co. are paper mill refiners and beaters. Both refiners and beaters are equipped with specially designed and treated Bolton-Quality knives.

Since April the Emerson Manufacturing Co. has been financed and operated by John W. Bolton & Sons, Inc. In the future it will doubtless be designated as the Emerson Division, of John W. Bolton & Sons, Inc. The two concerns, however, are run independently, with separate offices, plants and operatives. Backed by the Bolton interests and progressive methods, the Emerson Manufacturing Co. hopes to achieve even greater success in the paper machinery field.

New Forestry Director

Dr. John S. Boyce, chief of the Portland, Ore., office of Forest Pathology, Bureau of Plant Industry, has been appointed director of the Northeastern Forest Experiment Station at Amherst, Mass., to succeed S. T. Dana, who has resigned to become dean of the new Michigan School of Forestry and Conservation at Ann Arbor, Mich. It is expected that Dr. Boyce will remain in Portland until early in 1928 in order to complete some important research projects on which he is now engaged. In the meantime, Mr. Westvald, associate silviculturist at the Northeastern Station, will be acting director and have charge of all work under way.

The permanent technical staff over which the new director will have supervision is engaged in the study of forest problems of the New England States and New York. Special attention is being given at present to the problems involved in growing crops of pulpwood on the cutover forest lands of the Northeast. Statistical studies of forest fires and of forest fire weather and fuel relationships also are under way.

The Mathieson Alkali Works Inc., 250 Park Ave., New York City, announce F. H. Lovenberg, formerly in charge of the St. Louis district sales territory, has been assigned to the New England district sales office, Providence, R. I. C. J. Clegg, formerly in this position has resigned.

The Month at Washington

BUSINESS conditions over the country generally have picked up after the seasonal dip, says Herbert Hoover, Secretary of Commerce. "By and large business has shown little variance during the months of 1927 from the highly prosperous conditions of 1926," he said, "but all indications are fair for the continuance of good conditions during the remainder of the year."

National Sales Distribution Census—The Secretary said he would like to see a national census of sales distribution made, because of the success obtained in the 17 cities so far canvassed. "Such a census would be of enormous commercial value," he said, "and in taking the 1930 census this feature may be incorporated." It is pointed out that in addition to the regular biennial census of manufactures, a further census of distribution is desirable to show primarily the channels through which manufactured products reach the consumer. The cost of a national census is estimated in excess of a million, but it would show the volume of trade in paper commodities, for instance, and the various factors entering into distribution, such as labor costs, salaries, turnover, etc.

Survey of Current Business—With the issuance of the monthly edition of "Survey of Current Business," Wm. M. Steuart, Director of the Census Bureau, announced that this official compilation of business statistics is being used more and more by business interests for the purpose of observing business trends. Business is being saved from the "toils of depression" by having its course charted, and the Survey is designed to present each month a picture of the business situation by setting forth the principal facts regarding the various lines of trades and industry, particularly with regard to production, consumption, stocks on hand, and prices. Governmental agencies join with commercial and trade associations, trade papers and private organizations in gathering this data, which covers basic commodities and various lines of business and trade.

Industry Center Moving Southwest—The center of industry in the U. S., as determined by the Geological Survey, was about 50 miles southeast of Chicago. The center of industry has moved from 1908 to 1926 approximately 75 miles in a west-by-south direction. This indicates that industrial development is proceeding about the same in all sections, but a trifle more rapidly in the western and southern parts of the country. In January, 1908, the center of industry was on the northern boundary of Indiana, about 110 miles east of Chicago, but by January, 1926, it had moved 25 miles to the southwest of its position in 1918 and 50 miles southeast of Chicago. The geographic center of the U. S. is near the center of the northern boundary of Kansas and the center of population is in southwestern Indiana.

Use of Pre-war Prices Discarded—No longer will pre-war prices be considered as normal in the measurements of trends calculated by the Bureau of Labor Statistics, for the 1913 normal now falls into the discard and prices prevailing during 1926 will be taken as standard, and all fluctuations calculated from that, 1913 no longer equalling "100," so we can now stop talking about things before the war and use the prosperous year 1926 as a guiding star to shoot at for the future.

Wholesale Prices Double—The wholesale prices of all commodities in the U. S. increased on an average of 51 per cent in 1926 over 1913, says the Bureau of Labor Statistics, but with the general trend of wholesale prices in 1926 being downward.

Our World Trade—"Our World Trade" is the title of a bulletin just issued by the U. S. Chamber of Commerce, giving a review of world commerce for the first six months of 1927.

World Map on Equal-Area Basis—American exporters and business men use world maps for many different purposes, as both a record and a reference. A large wall map showing political boundaries, towns, steamship and railroad lines, ocean distances, fueling stations, cable and radio terminals, answers many questions quickly.

This same map, if it has a washable surface, or if it is backed with cork, may serve as a base for recording many different facts successively or at the same time. It may become a tool for planning business developments and sales campaigns, and strategic relations of a business enterprise appear on it before the business executive, but unless the map is correctly proportioned, untrue facts and relations, leading to false deductions, will be presented. The Department of Commerce has, therefore, prepared an equal area map well adapted to correct presentation of commercial information, which may be obtained upon application.

Trade Routes and Shipping Service—A revised edition of "Trade Routes and Shipping Service" of the U. S. Shipping Board has just been prepared, of 72 pages, replacing the original edition published last Spring. The booklet contains all information with reference to the operation of government merchant vessels and is designed to educate the American public as to the duties and functions of the American merchant marine.

Foreign Trade Reaches Highest Peak—An analysis of the foreign trade of the U. S. in the fiscal year 1926-1927 is contained in Trade Information Bulletin No. 507, just issued by the Department of Commerce, covering in statistical detail the amounts, values, destinations and sources of the various commodities entering into the merchandise trade of the U. S. with foreign countries, and shows that the physical volume of trade during this year exceeded all others.

Europe to Compete in American Markets—Edgar B. Broassard of the U. S. Tariff Commission has just published his observations of the European situation, having visited 12 of the most aggressive foreign countries on official business. European industries will make "tremendous efforts to compete successfully in the domestic market," he says and "American industry must produce efficiently and economically to meet these renewed efforts to capture this, the largest and richest market in the world." Dr. Julius Klein, Director of the Bureau of Foreign and Domestic Commerce, also travelled in Europe this summer and expressed similar opinions, warning American business that Europe is constantly driving for commerce throughout the world, with one eye cocked particularly on American markets.

International Trade Discussion—The International Convention for Abolishing Import and Export Prohibitions and Restrictions, as a project of the League of Nations, will be attended during its sessions which begins Oct. 17th by representatives of the U. S. The conference is called to draft a convention looking forward to the abolition of import and export restrictions of all kinds, but not to modify duties.

New Consular Procedure—The Pan-American conference on the simplification and standardization of consular procedure takes place in Washington Oct. 10th, with 20 nations of the Western Hemisphere sending delegates, pursuant to a resolution of the Third Pan-American Commercial Conference last May. The solution of consular questions will have the effect of expediting shipment of merchandise and facilitating trade between the American republics. Reduction of a number of shipping documents requiring certification, simplification of data required for consular invoices; adoption of a standard form of invoice and moderation of consular fees, are up for discussion, as are parcel post shipments of small value.

French Tariff Upheaval—The French tossed a bombshell into American commerce recently when it signed a reciprocal trade treaty with Germany, because of the changes in the French tariff established in connection with the treaty, imposing on certain lines of American goods duties four times as high as those applying to competing products from Germany, England and other countries. However, classes of products on which the U. S. will continue to receive minimum rates of duty include "machine-made paper, parchment and fancy paper."

Changes in British Tax System—Important changes are made in the tax system of Great Britain under the British Finance Act of 1927, according to a review just published by the Division of Commercial Laws of the Department of Commerce, showing recent changes in the tax system, particularly as they affect Americans doing business in Great Britain, a copy of which may be obtained upon application.

Supreme Court Meets—The U. S. Supreme Court convened October 3d, and although it disposed of the record number of 885 cases at the last term, it was faced with a docket of 562 cases filed since adjournment.

Restrictions on Child Employment—Restrictions on industrial employment of children is made the basis of a report just issued by the Department of Labor, showing that every state now regulates such employment and all but Wisconsin prescribes a minimum entrance age. Copies of the report may be obtained upon application.

Trade Agreements—Bulletin 448, just issued by the same department, contains a digest of trade agreements between employers and employees made during 1926, as to wages, hours, overtime, arbitration and apprenticeship. Other matters are also covered such as sanitary conditions, union labels on products, etc.

Claims for Depreciation—The U. S. Supreme Court has been asked to establish a rule as a guide to taxpayers and the Bureau of Internal Revenue, in passing upon the burden of proof or practice in connection with the allowance of contested claims for depreciation, in a writ of certiorari recently filed (No. 406).

Contribution to Chamber of Commerce—Contributions to a chamber of commerce fund to be raised for industrial and publicity purposes in the furtherance of building up a city, are not allowable deductions from gross income under Sections 214 and 234 of the Revenue Act of 1926, says a recent decision of the Bureau of Internal Revenue (I. T. 2375). But amounts included in such contributions or paid as membership dues or fees to the chamber of commerce by individuals and corporations deductions from gross income, provided the membership is employed as a means of advancing the business interests of the individual or corporation making such payment.

Loss of Goods on Approval—Merchandise shipped on approval or with knowledge that it is not in accordance with contract, remains as a part of the consignor's inventory, and should not be included in gross sales before acceptance by the consignee, says the U. S. Board of Tax Appeals (No. 6029), and an allowance made because of a falling market on merchandise shipped, is not an allowable deduction from gross income.

No Deduction for Loss of Good Will—In view of a recent decision by the U. S. Circuit Court of Appeals, the Internal Revenue Bureau has amended Article 163, Regulations 45, 62, 65 and 69 by Treasury Decision 4055, denying a tax reduction for loss of good will, the new article now reading: "No deduction for depreciation, including obsolescence, is allowable in respect to good will."

Manufacturing Production in August—Production by manufacturing plants in the U. S. showed no improvement during August, and slackness was noted in both stocks and number of orders filled. The index numbers are here shown:

Production	1927		1926
(Index numbers: 1919=100)	July	August	August
Paper and Printing	104	111	122

Recent Customs Decisions—Denying relief to Burstein & Sussman from imposition of 10 per cent additional duty for non-compliance with the marking laws the U. S. Customs Court in a recent decision finds that certain imported rolls of paper were capable of being marked and should, upon entry, have been stamped with the name of the country of origin. (No. 53488-G-56908-24 NY). The 10 per cent penalty was imposed for failure to comply with the marking laws.

Surface coated papers, the designs on which are produced by means of attachments to the paper machine, are properly dutiable at 4½ cents per pound under the specific provision for such papers in par. 1305, tariff act of 1922, even though the designs penetrate the paper from surface to surface, according to a decision sustaining a protest of the Kupfer Bros. Co. The paper, the subject of this test case, was classified on entry as "paper colored in the pulp, not printed on a machine, having an intermingled color design effect." Duty was levied at the rate of 30 per cent ad valorem, under par. 1309, as "paper not specially provided for." The court, however, sustained the contention for reduced rate. (No. 87891-G-2058-25).

Woven felt fabric, used on some papermaking machines to help convey the paper to the dyer after it is manufactured into sheet form, must pay duty under par. 1109 at 45 cents per pound and 50 per cent ad valorem, according to a decision by the U. S. Customs Court, overruling protests of P. J. Schweitzer, Inc., who contended for duty at either 30 or 35 per cent under par. 372 or at 50 per cent under par. 1119. (Nos. 108214-G-28335-25 NY).

New Surveys and Census—When the buyer pays freight charges allowed him by the seller, should a discount allowed for cash be deducted from an invoice before or after the freight allowance has been taken? The answer to this question is by no means unanimous among business men in this country, with uncertainty and confusion prevailing at large. At the request of American Business interests, the Domestic Commerce Bureau has, therefore, undertaken a survey of discounts on bills, hoping to arrive at a better understanding between buyers and sellers, and to find a basis for mutual agreement. A great many now take the discount before the freight allowance is deducted. While the government does not act as judge or suggest what practice to follow, facts are being gathered to clarify the issue, and to further uniformity of action.

The Census Bureau has prepared a series of pamphlets, "Record Book of Business Statistics," as an aid to business executives in analyzing tendencies in production, prices, exports and other phases, showing actual uses of the report by business concerns in planning sales and production policies, purchasing, etc. The figures enable a business man to study price fluctuations, business trends, raw materials, etc.

Preliminary figures of sales of various commodities in Fargo, N. Dak., and Denver, Colo., under the distribution census, have just been made available by the Census Bureau and may be obtained upon request. Paper and paper goods were not covered separately in the Fargo census and the figures obtained have no value to the industry. The Denver figures of retail distribution show 12 establishments engaged in the distribution of paper and paper goods, employing 270 people with 5 firm members of proprietors, paying annually in salaries and wages $389,100 with an inventory on Dec. 31, 1926 of $755,700 and sales aggregating $3,948,000.

Releases will be made this month covering Kansas City, Kans., Atlanta, Ga., and Springfield, Ill., and copies of these reports may be obtained upon application to the Census Bureau.

Completion of the southeastern distribution survey and the preparation of a report to be issued shortly in book form, is reported by the Domestic Commerce Division. The report analyzes the major factors underlying distribution in the southeastern states, and is something entirely different from the sales distribution of the Census Bureau. The report covers Alabama, the Carolinas, Florida, Georgia and eastern Tennessee, as a homogeneous market area, consideration being given to the geographic basis of its commerce and population influences, resources and keystone activities with their relationships to trade, productivity and employment in the area. Particular emphasis has been laid on commodity movements, sales problems, and indexes of income and consumption.

Selling Safety In Paper Mills to Superintendents[1]

BY J. H. SLATER

Manager, Escanaba Paper Co., Escanaba, Mich.

THE very fact that we should want to discuss the matter of selling safety to paper and pulp mill superintendents indicates that there has probably been some disappointment or failure to have superintendents become interested to the extent that they should in the matter of maintaining safety in the plants over which they have control, and I think there is little doubt but this is so. I am tempted to believe that we have all had experience with superintendents that has been disappointing in connection with safety work, and we probably all have some idea as to the reason for not getting better results, better co-operation and more satisfactory safety conditions because of laxness on the part of mill superintendents.

Personally, I am very much a believer of the old proverb that "the eye of the master makes the house thrive," and in this case the meaning of this proverb is that in the final analysis, the management—the company executives who occupy a position over the superintendent—are perhaps as much to blame or more to blame for lack of energy or enthusiasm than the superintendent is himself. Even the best of superintendents are much disposed to take their cue from the attitude of the management above them, and if there is an atmosphere of indifference, or perhaps, more correctly an attitude of weak interest on the part of the management, then the superintendent very easily and very quickly senses this condition and falls into the same attitude. Particularly is this true as the superintendent has usually been trained over many years to give his first attention to quantity of production, to quality and then to the economy of production, and it is not easy for him to realize what a vital part safety plays in the matter of quality, quantity and economy production.

While it is true that practically all mill executives subscribe to the doctrine of a safe mill and evince a desire to have few accidents, a great many treat the matter of safety as a small detail to be passed over with as little consideration and trouble for themselves as possible, delegating the matter of following up nearly everything that has to do with safety and better working conditions to a superintendent or foreman.

Perhaps a safety organization has been formed, but all too frequently it exists as a weak, ineffective force. Its recommendations for safer conditions and the recommendation of factory inspectors from the insurance companies are ignored or delayed for weeks and months, and then, too frequently, carried out reluctantly with much complaint about the cost, or the stupidity of the working force that makes them necessary. In other cases, safety measures and safety work are attacked spasmodically, the result being that the whole subject finally comes to be regarded as a necessary evil hardly worth the effort.

Active Interest by Management Essential

The state of mind arising from a condition of this kind permeates the whole force and is a cause of much failure to gain the large percentage of success in safety work which should be the aim of all effort in this direction. There is a species of insincerity, or at least a weak belief in safety work, and this quickly affects the superintendent unless he has been completely convinced on safety work previously; and even if he has, when he finds a lack of vital interest and energy in this matter emanating from the head executive, he is almost sure to let down in his interest and in his effort. To attain success there must be a constant, aggressive demand for a betterment of safety conditions on the part of the executive management. There must be earnest encouragement and proper financial support given to all problems of safety, so that the superintendent and all his men may realize that safety in the operation of the plant is in a measure just as vital in importance as production and quality—in fact, we strongly believe it is one of the principal factors and production is lowered and quality impaired by an undue number of accidents, and quality is sustained and improved by a small number of accidents.

The up-to-date executive will not fully delegate safety and improved working conditions to his superintendent but will make it an important part of his whole scheme of direction of operation. He will want to fight the battle of meeting the needs of his fellow men in his particular line of manufacture with as few wounded and killed as possible. Why? Well, because it is the humane thing to do and particularly is it the economical way to operate. It pays in dollars and cents. It pays in the reaction of the employees—in the feeling that their comfort and safety is a matter of real concern, and the management recognizes its obligation. Every superintendent is continually and profoundly influenced by the executive management above him. His thoughts are colored, his actions are influenced, his decisions are made almost invariably with the thought of what the executive wishes. Of course, this means that when strong influence is exerted in favor of certain action, this will receive the support of the superintendent to a much greater extent than if certain desires are weakly expressed or indifferently sustained. Therefore, if you have difficulty or think you have difficulty in selling safety to your superintendent or superintendents, look to yourself and frankly analyze your own attitude. Judge if you have given him the proper moral and financial backing. Judge if you have by your actions created an atmosphere of sincerity regarding your interest in safety, your determination to demand safe operation as you will demand production, quality, economy and all the other features you believe necessary in successful manufacture. Then if you are really satisfied that you have done your part, I think there will be little difficulty in having your desires carried out, in selling more completely the safety idea to your superintendent. If perchance you do not have success, then your superintendent is evidently not the man for the place he occupies.

The extraordinary interest and vigorous effort accorded safety measures is of comparatively recent origin and yet it has been given recognition to a still greater degree each year, so that every superintendent today is more or less interested in it, but just needs to have his interest stimulated constantly by insistence on measures and methods for the reduction of accidents.

Value of Safety Must Be Instilled

Life, and the conduct of life, is constantly being modified and adapted to meet the demands which are being made upon it, so we merely have to sternly insist that safe manufacturing operation be given adequate consideration and the superintendent is pretty certain to deliver what is required from him. However, there are many different minds and superintendents vary greatly in their opinions as to the value of safety, and thus it is strictly up to the management to press on the superintendent the need for the leadership in safety work as in all the other functions of his position. The management can easily show the superintendent the outstanding value of safe working conditions in its actual reduction of cost per ton of production.

Ordinarily this cost changes from month to month and is at its lowest when there are no accidents. This is convincing evidence and should spur the superintendent to redouble his efforts in educating his foremen and other employees to greater care. Once the superintendent is made to feel, through the management, the full responsibility of his position in this regard, he is almost certain to awaken and presently the whole organization will be permeated with a consciousness of danger and the need and power to prevent it by putting up a line of defense.

Orderly Mills Most Efficient

The progressive superintendent—and they all want to be numbered in this class—can be shown that to take more and more interest in safety work will enormously raise him in value to his employer for he will then more vividly comprehend the need for quiet but firm discipline because confusion and lack of order breed accidents. He will note more keenly the dangers about his plant from lack of cleanliness, from

[1]Presented at Paper and Pulp Section meeting of National Safety Council Congress, held at Hotel Stevens, Chicago, September 28, 1927.

the disorderly arrangement of everything that has to do with the work from the absence of proper lighting, unsafe tools, dirty corners, obstructed avenues, slippery floors, accumulated debris, dangerous, risky methods of working and the thousand and one features open to criticism which he perhaps never fully realized before.

He is almost certain to see deficiencies and danger conditions in his mill with a new outlook—sloppy, wet floors in the grinder room, rickety trucks, grinders obscured in vapor and covered with stock and useless appendages, and all the other features that go with such conditions. These loom up as a danger. In a sulphite or sulphate mill, leaky pipes, a mill smelly with escaping gas and wood room and repair shop room confused and dirty and totally lacking in order, a mill yard without system, all these will present themselves as menaces to safety. A boiler house and power plant dirty and disorderly, creating a sense of insecurity and impermanence; a machine room perchance greatly overheated, improperly ventilated; employees exhausted from working in such conditions, will all emphasize in the superintendent's mind the need for better organization and better direction so that he may reduce accidents, and of course in doing this he will improve running conditions in his whole mill.

If he is the right sort of superintendent, he will be rather appalled at the imminence of the dangers arising from just a few of the conditions I have touched upon and he will probably want to begin at once to put his house in order. As a matter of fact, there is a vast amount of poor housekeeping in mills, and it is a source of numerous accidents; but the superintendent who insists upon a clean, orderly mill with a place for everything and everything in its place will automatically reduce the accident record, also reduce waste, cut costs, increase production and make all manufacturing conditions more definitely reliable.

Formation of Safety Committees

Safety is an essential factor of operation, and failure to secure it is failure to fill the job satisfactorily. Every superintendent should realize this. He is called upon to play a difficult part. He is, to a large extent, "his brother's keeper." Although we emphatically believe that safety should be observed and carried out on a strictly business-like basis, a friendly, sympathetic attitude on the part of the superintendent in his intercourse with his men will do a great deal toward avoiding accidents. The formation of safety committees should by all means be made and continued, and as time goes on it has been our experience that it is surprising how many men on committees show special aptitude for the work in suggesting dangerous places and dangerous practices. This is an excellent means of giving to a considerable number of your men possibility for self-expression. Many men will show real leadership in heading groups of workers. The wise superintendent will be quick to recognize such men and use their talent in various ways to cut down accidents and it will be a means of getting a more accurate knowledge of their fitness for promotion.

Our experience has shown that our greatest losses, our most severe cases have usually come from a small injury—a small cut, a scratch, an abrasion that was not given attention and protection, so that presently it was a bad case of blood poisoning. An educated accident committee group will do much to reduce such cases by warning the injured man of his danger and by assisting the foreman to note such injuries.

Safety Duties of Superintendent Everlasting

Then a modern, intelligent superintendent hardly needs to have it impressed upon him that continued reiteration, repetition of warnings and cautionings and still more repetition is of infinite value in educating his men. It is the way we gain most of our knowledge and have it stick in the mind. Safety education advances through cycles. First, means are taken to keep the mind fresh and active in the matter of accidents, the most recent one being the posting of highly colored posters —display pictures with pertinent and humorous quotations. We think this way of driving home the truth of wonderful value. It keeps interest alive and in a pungent manner shows the absurdity of many practices that make for accidents. Men talk about what is shown, getting a laugh out of it, but the truth gets over and remains in their minds.

The superintendent's duty is to direct the making of pulp and paper. With almost equal care he must direct the making of safety or eventually his company and himself will be beaten; and, while committees, cautioning signs, placards, mechanical protections and the whole array of safety measures are needed, the superintendent must be the building force, he must be the initiative, he must reach out and keep himself thoroughly acquainted with what others have done and are doing and adopt as much of it as will fit into his particular mill. We may say with the poet, "if it were as easy to do as it is to tell what to do, then poor men's cottages would be princes' palaces." The superintendent's task in warding off accidents is everlasting, and it is not as easy to do as it is to tell him what to do, and while he cannot make poor men's cottages princes' palaces, he can do, if properly supported by his company, a world of good in keeping sickness, pain, disaster and death from many a poor man's cottage and while doing so make his mill more highly profitable.

Disaster at Kimberly Mill

Without warning, at 10:03 Friday morning, October 7th, that section of the Kimberly Mill of Kimberly-Clark Co., Kimberly, Wis., collapsed which housed the Niagara beater serving their No. 5 machine and above which was their pulp bleaching equipment. At this writing, it is impossible to state the cause of the collapse, as there is still much debris to clear away.

When the collapse occurred, 15 men of the Kimberly-Clark Co. were operating the two departments above mentioned on the first and second floors. In the basement, 14 men of the C. R. Meyer & Sons Construction Co. were removing an old flume.

The following statement was received direct from the Kimberly-Clark Co. on Sunday evening, October 9th: "The known dead among the Kimberly-Clark men are—Norbert Goffard, Arthur Brockman and Peter Langfeldt. Of the C. R. Meyer men, Otto Krueger died upon reaching the hospital last Friday. Eighteen men are in the hospital and without exception are doing well. If nothing unforeseen occurs, all should recover. Five missing men are doubtless still in what remains of the wreckage, and in view of the time that has elapsed, little hope for their lives can be entertained. They are—John Fiers and Frank Johnson, of the Kimberly-Clark Co.; J. Manders, J. Despins and H. Sprangers, of the C. R. Meyer Construction Co.

Emergency Work. The morale of the entire working force is marvelous. Following is a quotation from the remarks of Mr. Ernst Mahler, general superintendent, in meeting of the Kimberly Mill Council on the evening of the day following the collapse:

"In connection with the behavior of the people employed at the mill and the citizens of Kimberly, I have never seen a better demonstration of loyalty than that shown by the people of Kimberly. It makes us feel that we are close to our men and our men are close to us. I assure you that everything humanly possible will be done for the families of those who are gone, and those who are injured as far as financial and moral support is concerned, but not one of us can restore life. I want to thank the people through you for the support given by them in the greatest tragedy we have ever had in the Kimberly-Clark Co."

J. C. Rowett has recently been appointed factory district representative for Foote Bros. Gear & Machine Co., for the state of Minnesota and territory in Northwestern Wisconsin. His headquarters will be at 406 6th Ave., South, Minneapolis, Minn.

The Paperboard Industries Association met at the Palmer House, Chicago, September 21 and 22. Group meetings were held, and Mr. J. P. Brunt, President of the association presided at a general meeting the afternoon of September 22nd. The sessions were interesting and instructive, and very well attended.

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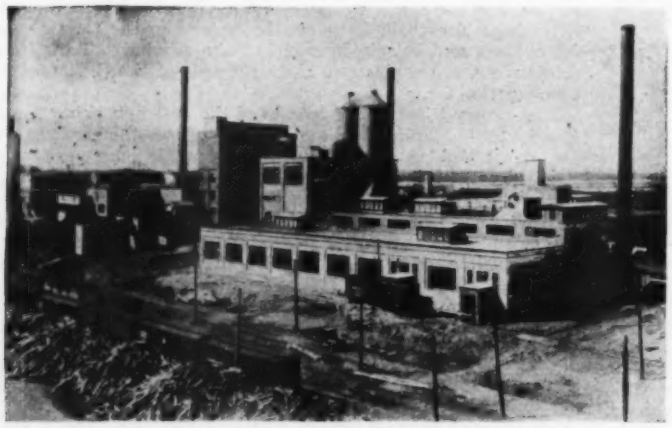

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INVESTIGATION TESTS DESIGN EQUIPMENT

The Use of Pure Iron in the Paper Industry[1]

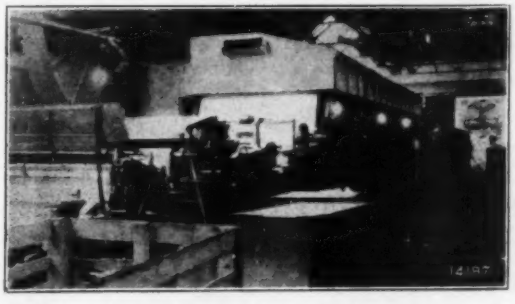
By D. M. STRICKLAND
The American Rolling Mill Co.

IT is usually the most baffling problem that challenges most invitingly our ability for solution.

No more important problem than elimination of the gigantic waste caused by rust has confronted industry and yet no problem has been so difficult to solve.

The wastage of corrosion is difficult to evaluate in dollars, simply because it does not appear on the ledger as an individual account. The loss is charged against installation, or maintenance, or, what is most often the case, is totally buried in a general depreciation figure.

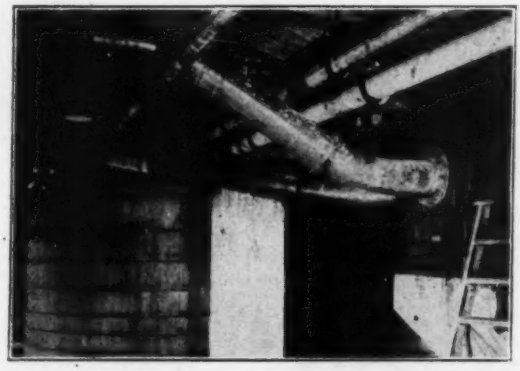
In early days, when repair costs of labor and materials were of lesser magnitude, rapid depreciation was not so vital. But modern manufacturing efficiency, with its standardization of methods and machines, has brought about a degree of com-



Pure iron dryer over machines of Champion Coated Paper Company, Hamilton, Ohio. These machines blow hot air through the dryers to eliminate the steam pockets which form in the drying rolls. The conditions are so severe that the rivets are often rusted out

petition that forces a very narrow margin of profit. Replacement and maintenance of plant equipment may easily mean the difference between dividends and debts.

Corrosion has slowly but firmly forced itself into a position squarely across the path of further industrial progress. It has achieved universal recognition as one of our major industrial problems.



Pure iron sixteen gage galvanized used in these stuff pipes leading from eight different beaters to the stuff chest shown in the picture. The stock they carry contains soda, starch, and alum

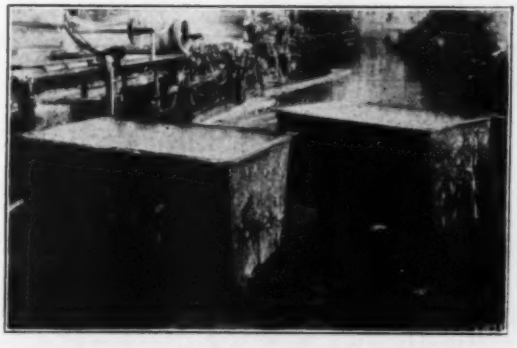
In the paper industry, corrosion extracts the heavier toll associated with the chemical engineering industries. It is characteristic of the chemical industries that at various points in the processing, materials of construction are subject to severe service. Beater hoods, cooking vats, drying systems, ventilators, stuff pipes, paper-waste carts, and water tanks are all examples of paper mill equipment particularly vulnerable to corrosive attack from the moisture and chemical fumes associated with paper manufacture.

If repairs and replacements are unnecessarily frequent, operation efficiency suffers and costs climb accordingly. The use of more serviceable material means more effective production, more profits. Naturally, the points of severe service

Paul A. Sorg Paper Co., Middletown, Ohio, has found pure iron the most economical metal for sheet and plate work in its mills. Much sulphite and some bleach are used in this beater hood, which is in excellent condition after seven years service thus far

are the first objects of attention toward securing improvement. It was the use of pure iron at these points by various large paper mills, which first pointed the way to the savings possible by a wide application of this longer lasting material to metal requirements throughout the paper industry.

There is, of course, a definite scientific reason for the slower corrosion of pure iron compared with steels and semi-pure irons. A government bulletin, No. 239, "The Corrosion of Fence Wire," published by the U. S. Department of Agricul-



Two of more than 100 paper waste carts built with pure iron sides, Champion Coated Paper Co., Hamilton, Ohio.

ture, was the instigator of the effort to produce purity in iron on a commercial scale. This bulletin gave the results of a government research made to determine the reason for the rapid rusting out and failure of modern fencing wire.

One of the conclusions of this research was, to quote from the bulletin:

> "That modern Bessemer and open-hearth steel rusts much more rapidly than iron wire."

With this conclusion was advanced an explanation of the electro-chemical nature of corrosion. This explanation is capable of accounting for the deep pitting which so often leads to the failure of metal installations long before a general coating of rust would cause destruction.

To the unequal distribution of impurities which steel contains (such as carbon, manganese, sulphur, copper, etc.) was attributed the cause of the trouble and. from this, the suggestion followed that it was natural to suppose the easiest way to correct the trouble would be to cut down, in the process of manufacture, as much as possible the impurities present. This suggestion was recognized, however, as one difficult of commercial accomplishment.

[1]Presented at the fall meeting of T. A. P. P. I. in Middletown, Ohio, October 6, 1927.

The advantages of WOOD ROSIN SIZE

Kalbfleisch Wood Rosin Size is the equal of the commoner grades of gums for many uses—and more economical.

It is recommended for sizing unbleached stock, such as box board, fibre board, etc. In fact, for all papers where lightness or whiteness of color is not essential Wood Rosin Size will give complete satisfaction. A practical saving can be secured, for Kalbfleisch Wood Rosin Size is always quoted under gum sizes of similar effectiveness. Also, it is more stable in price, not being so subject to the fluctuations characteristic of the gums.

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But, to repeat the introduction, "the most baffling problem challenges most invitingly" and the problem was solved after four years of research and experimenting, marked with many trials but rewarded with ultimate success. It was one of the most notable achievements ever attained in the metallurgy of iron and steel.

This was all between the years of 1905 and 1909, and pure iron has had nearly twenty years to establish conclusively in a practical way the superiority which scientific research had predicted for it.

Iron and steel continue to rust. It is an inherent characteristic of iron to return to the form in which man wrested it from nature—the oxide of iron which is our iron ore. But there is a vast difference in the character of the rust which forms on the surface of a pure iron plate and that which forms on a steel one.

With pure iron, the oxide coating is dense, uniform, and closely adherent. It forms, after a time, a protection in itself to the metal beneath.

With steel, the oxide forms in loose patches or scales because of the non-uniformity of the metal composition. This uneven rusting and, what is even more destructive, the pitting action, are caused by the "battery" (electro chemical) action which takes place whenever moisture is present to cover the impurities and iron that compose steel. Each particle of impurity makes, with the iron that surrounds it, a tiny battery whenever moisture is present. As in all batteries, one of the constituents must be destroyed to furnish the chemical energy necessary to provide the current.

It is the localizing of corrosion by this battery action which pits steel and promotes formation of the loose scales of rust that are ever flaking off to expose new metal for corrosive attack.

Naturally, where acid fumes or steam vapors or products of combustion are present to increase the capacity of the moisture for carrying an electrical current, the action of the tiny batteries of "iron plus impurity plus moisture" is speeded up, causing earlier failure.

It is for this reason that commercially pure iron, with its content of less than one sixth of one per cent of substances other than iron, or in other words, an iron content of 99.84 per cent, is so well adapted to service in paper mills. Purity and long life travel hand in hand on a road to greater profits for the paper manufacturer.

New Electric Melting Pot

A new electric melting pot has been introduced for melting solder, lead, babbitt, tin, etc., having a capacity of from 27 to 40 lbs., according to the metal to be melted. This pot may be operated on either 110 or 220 volt alternating or direct current circuits and is made in two ratings, 750 to 1,000 watts.

The new pot is a General Electric product and consists of a durable sheet steel cylindrical casing ten inches deep and nine inches in diameter, in which is supported a cast iron crucible four inches deep and six inches in diameter, inside. The approximate shipping weight is 50 lbs.

Court Decisions on Imported Papers

During the summer, though the United States Customs Court has not been in session, justices trying paper cases have handed down many decisions involving imported paper. In practically all of the cases decided the government was assisted by the Import Committee of the American Paper Industry with evidence and witnesses to sustain the action previously taken by appraisers at the various ports.

Among the decisions recently announced are the following:

Fourteen importations of rotogravure paper imported at New Orleans, Boston and Norfolk were held to have been undervalued.

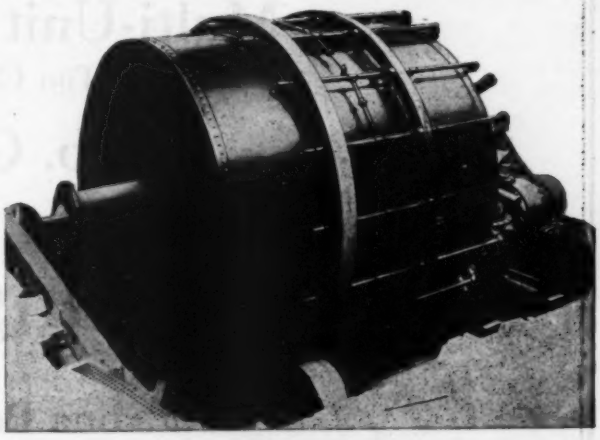
Wrapping, manifold, book, hanging and fancy papers imported at Boston, New York, and Galveston held to have been undervalued.

In addition to these court decisions, the Treasury Department has handed down an important ruling involving cover paper, instructing appraisers to classify such paper as paper not specially provided for at 30 per cent. Importers claims were varied, some claiming it to be dutiable as printing paper at ¼ cents per pound and 10 per cent, and others as board at 10 per cent. The Treasury Department ruling was in conformity with the position taken by the Import Committee, on the advice of the cover paper manufacturers.

New Type of Continuous Vacuum Filter

A distinctly new type of continuous vacuum filter, to be known as the Dorrco Filter, has been introduced for general filtration work by the Dorr Company of New York. Several new features are incorporated in this filter which give it a relatively wider field of application than the usual type of vacuum filter.

Referring to Figure 1 it will be seen that the filter medium is applied on the inside of the drum and that the division of the total filter medium into several sections or panels makes



Dorrco Filter

it possible to change all of the cloth or any panel of it by removing the wood strips which secure the medium to the drum. Vacuum for cake formation, drying, and washing and

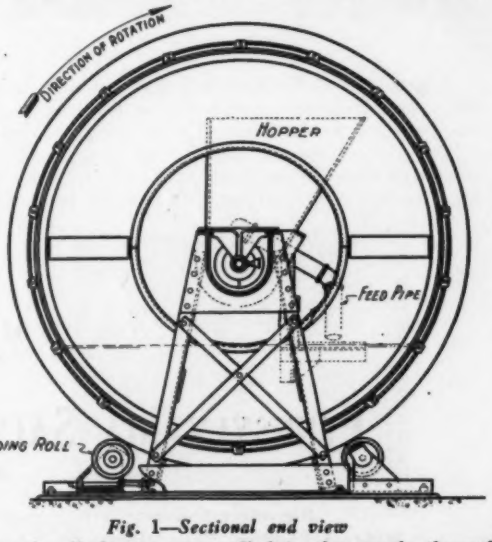


Fig. 1—Sectional end view

air for cake discharge are applied to the panels through a port valve of the usual type adjacent to the closed end of the drum. All piping is located on the outside of the drum and is extremely accessible.

The drum, at its open end, is provided with an internal flange which serves to retain the pulp within it during filtration, thus eliminating the filter tank. Figure 2 shows the feed pipe extending into the drum through the trinnion at the closed end of drum, although the feed may enter through either end as desired. The cake is discharged from each panel

LIQUID CHLORINE

Single Unit Tank Cars

Multi-Unit Tank Cars

(1-Ton Containers)

150-lb. Cylinders

Bleaching Powder

Natrona Porous Alum

Commercial Sulphate of Alumina

Manufactured by

PENNSYLVANIA SALT MANUFACTURING COMPANY

Incorporated 1850

Executive Offices:
Widener Building, Philadelphia, Pa.

Representatives:
New York Chicago
Pittsburgh St. Louis

Works: Philadelphia and Natrona, Pa. - Wyandotte and Menominee, Michigan

Chlorine Distributing Stations: Philadelphia, Pa. and Babbitt, N. J.

in turn by pulsating air admitted between the cloth and the shell by a special valve which is driven from the filter counter shaft. The filter cake drops into a hopper inside the drum and is removed by a screw conveyor.

A trunnion bearing supports the filter at the closed end while the drum is supported near the open end by a trundle bearing the tire, being secured to the shell and the rollers mounted on the main filter baseplate. The drum is rotated by means of a worm and worm gear drive and turns in a clockwise direction. The filter is furnished with direct motor drive or is arranged for belt drive from a line shaft.

It will at once be seen that in the Dorrco filter, gravity aids filtration by causing the particles to tend to segregate directly

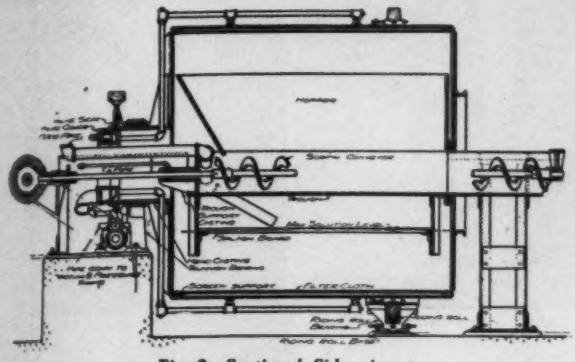


Fig. 2—Sectional Side view

against the filter medium. Figure 3 represents a cross section through the filter drum showing the direction of segregation of the relatively coarse particles which takes place in substantially the same direction as in a graduate filled with pulp. This feature is of considerable importance since segregating and dilute pulps may be handled readily; relatively coarse,

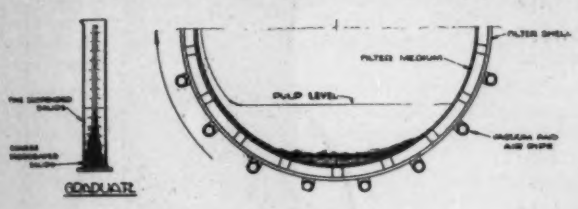


Fig. 3—Segregation of pulp in Dorrco Filter

quick-settling material may be contained in the feed, agitators and air lifts to keep the solids in suspension are not required, and, after a shut down, operation may be resumed without any tendency for the settled material to stall the machine.

Since particles of the same specific gravity settle at different rates according to their relative size and shape, the coarsest particles in the feed form that part of the cake which lies next to the filter medium while the finest ones are the furthest removed from the cloth. This minimizes the tendency of the fines to work into the pores of the cloth and thereby assures a uniformly high filtration rate and a long life for the filter medium.

One large Dorrco filter has been in commercial operation for over a year and other units have been operating for some months. While the ability of this filter to handle coarse material is one of its most interesting features, this unit is equally well adapted to handling the other pulps which are generally dewatered on vacuum filters.

Henry Wise to Talk at Salesmen's Convention

Henry A. Wise, author of the "Wise plan" under which the Import Committee of the American Paper Industry was formed, now general counsel of that Committee, will be the chief speaker at the annual fall luncheon of the Salesmen's Association of the Paper Industry, held at Chicago, Tuesday, October 25, 1927.

His appearance before the Salesmen's Association will be the first time he has publicly discussed the problem of unfair foreign competition in the paper industry, since the meeting of that association in the spring of 1924 took the action which eventually resulted in the formation of the Import Committee. While Mr. Wise's subject has not yet been announced, he has consented to speak on the general subject of foreign competition, with a review of the three years of work done by the Import Committee in an effort to check the evasion of the customs laws by importers of foreign paper.

The Salesmen's luncheon will be held during the week of the National Paper Trade Association's convention in Chicago, and many manufacturers will be here at the same time to meet their friends in the merchants organization.

Sealing Containers with Silicate of Soda

In a short article entitled "Sealing Fiber Cases" which appeared on page 782 of the August issue of THE PAPER INDUSTRY, an error occurred in associating a group of illustrations which portrayed the use of gummed tape in sealing

Right way

Wrong way

fiber cases, with a statement that the Philadelphia Quartz Company together with other manufacturers of silicates of soda and adhesives had co-operated in their preparation.

The material in this article was taken from two special folders, published by the American Railway Association and the American Railway Express Company, each descriptive of

Holding flaps together under pressure

a different method of sealing. Each states that it is an educational circular on one of the methods of sealing fiber containers and not an endorsement of any particular method.

The folder entitled "Fiber Cases, Good Sealing for Safe Delivery," is that in which the Philadelphia Quartz Company co-operated, and this describes the method of sealing the flaps of containers with silicate of soda or other adhesive.

For further information on the subject than was given in the previous article, we quote as follows from the folder

Hot galvanized for paper mill work

TAYLOR Spiral Riveted Pipe for pulp mills and paper mills is hot galvanized. The pipe with flanges attached is completely immersed in the bath. The metal drains off slowly. There is no wiping or thinning.

All Taylor pipe is made of copper bearing steel. This greatly increases its resistance to rust and corrosion. The pipe material itself and its protective coating (galvanizing or asphalt according to the service) are twofold assurance of many years of service.

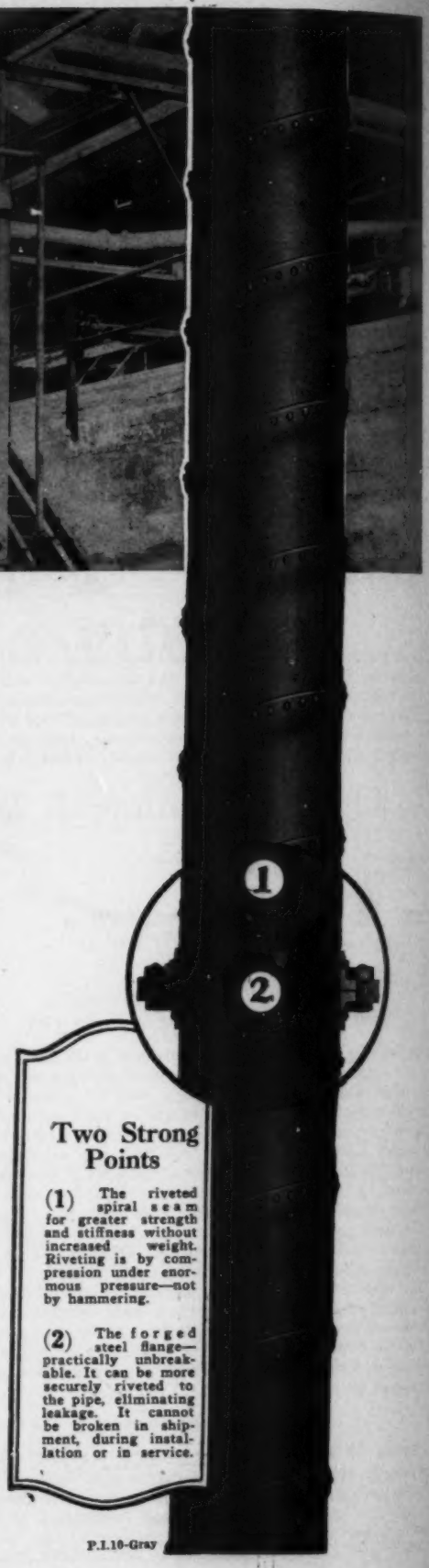
Because of its lightness, Taylor Pipe can be handled and put in place at a lower cost than more cumbersome pipe. Because of its riveted spiral seam it has the strength of much heavier pipe.

The sizes are 3 to 42 inches, with lengths as required.

At your Request we will send you catalogs on Taylor Spiral Riveted Pipe and Taylor Forged Steel Flanges.

AMERICAN SPIRAL PIPE WORKS
Main Office and Works: Chicago, Illinois, P. O. Box 485
New York Office: 50 Church Street

TAYLOR *Spiral Riveted* PIPE



Two Strong Points

(1) The riveted spiral seam for greater strength and stiffness without increased weight. Riveting is by compression under enormous pressure—not by hammering.

(2) The forged steel flange—practically unbreakable. It can be more securely riveted to the pipe, eliminating leakage. It cannot be broken in shipment, during installation or in service.

P.I.16-Gray

which describes the proper method of sealing with adhesive and illustrated with a few of the pictures shown:

"The secret of strong sealing with adhesive is to have both sets of flaps tightly sealed together over the entire areas of contact. This means two things: first, the adhesive must be spread over the whole area of contact, not just in spots or streaks; second, the flaps must be wholly in contact while the adhesive sets. The following points should be borne in mind:

1—The adhesive should spread evenly. It should take hold of the flaps on which it is spread, without 'crawling' or leaving uncovered spots. This is especially important when the cases are made of highly sized board. Rather than use an excess amount in order to cover the flaps completely, use an adhesive of proper consistency which will spread easily and avoid rubbing up.

2—The adhesive should stay sticky long enough for the flaps to be brought together—it should not scum over or dry out too quickly.

3—On the other hand, the adhesive should set within a short time after the flaps are brought together, so that the sealing can go on readily without holding up operations for the adhesive to set."

Catalogues, Booklets, Etc.

Combustion Engineering Corp., New York, N. Y.—This company has just put out a revised edition of its Fin Furnace Catalogue, descriptive of this water-cooled furnace.

The Connersville Blower Co., Connersville, Ind.—Bulletin No. 19E covering their Cycloidal Rotary Pumps has been issued to supersede bulletin 19D.

Foote Bros. Gear & Machine Co., Chicago, Ill.—A new catalogue No. 400 gives the complete history of the development of worm gearing from the earliest days; data, information and tables on IXL Moderntype worm gearing.

Detroit Stoker Co., Detroit, Mich.—A new bulletin No. 979 entitled "The Most Economical Method of Burning Coal" outlines the factors to be considered in selecting fuel burning equipment.

Lakewood Engineering Co., Cleveland, O.—The use of storage battery tier-lift trucks for material handling in industrial plants is completely described and illustrated in catalogue No. 35-A.

Link-Belt Co., Chicago, Ill.—Book No. 715 gives illustrations and tables of Sykes Harringbone Speed Reducers.

Herbert Morris, Inc., Buffalo, N. Y.—"Morris Runways" is the title of book No. 106, which describes and illustrates overhead runways in industrial plants. Paper mill uses are illustrated. A complete diagram of a runway system is given.

Reliance Electric & Engineering Co., Cleveland, O.—Type AA Reliance Induction Motors are completely described and well illustrated in bulletin No. 101.

Joseph T. Ryerson & Sons, Inc., Chicago, Ill.—A new catalogue No. 27, covering this company's entire line of small tools and machinery has been received. This catalogue is in attractive book form, indexed, and gives prices and specifications. Price supplements will be issued giving f.o.b. points, discounts, etc. Copy will be sent upon request to buyers of small tools and machinery.

Warren Webster & Co., Camden, N. J.—The Webster Drip Trap is a new product for use in Webster systems of steam heating, and is described and illustrated in bulletin No. 712.

Webster Manufacturing Co., Chicago, Ill.—A new catalogue No. 50 has just been received covering the Webster line of chains and sprockets. Illustrations show these products in service. Price tables and specifications are given.

Westinghouse Electric & Mfg. Co., South Philadelphia, Pa.—Leaflet 3907-C describes turbines for mechanical drive in capacities 5 to 750 brake horse power.

Zaremba Company, Buffalo, N. Y.—Evaporator equipment built by this company is specifically described in their new catalogue just received. Illustrations show complete units in operation.

Plant Inspection and Safety Committees[1]

BY B. D. ROGERS

Mgr., Labor Bureau, Bird & Son, Inc.

THIS paper on Plant Inspection and Safety Committees will center around the methods which we feel have proved fairly successful in our plants.

The first point, and one that I believe everyone interested in the safety movement agrees upon, is that the best or even satisfactory results can be obtained only when every member of the working organization is heart and soul in safety work. By that I mean the owners, the management, the supervisors and the workers. Everyone in the organization is jointly responsible for the success and promotion of safety as an integral part of any mill.

In our company, the safety organization consists of a central safety committee, five local plant safety committees and the safety inspector.

The function of the central safety committee is to direct and keep alive all matters pertaining to safety. Its membership consists of the general manufacturing manager, assistant manufacturing manager, plant engineer, superintendents of all plants, chief engineer, safety inspector and manager of labor bureau.

Our local plant safety committees consist of from ten to fifteen members depending upon the number of departments or workers in those plants. The superintendent of each plant is the permanent chairman of the committee. The other members include both foremen and workers. Appointments are made every six months by the central safety committee upon recommendation by the superintendent. Usually a member continued on the committee for a year, so that only one half of the committee changes at one time.

Duties of Safety Inspector

Our safety inspector is directly responsible to our general manufacturing manager and, hence, his work is directive and official. His inspections are regular and continuous, and deal with:

1—The elimination of accident hazards through unsafe conditions and careless practices. This means the recommendation of safe guards, safe working conditions, repairs to dangerous equipment, etc., and the correction of working habits of men and women who do not follow safe practices.

2—The maintenance of safe working by co-operation with the foremen. The inspector should see that the safety idea is always kept before the men. If a machine has a guard, he should see that it is used or kept in place. If a safety rule is established, he should see to it that the rule is followed at all times. If he condemns any equipment, he should see that it is repaired or destroyed. Every new employee is interviewed by the inspector during his first week of employment.

3—The follow-up and investigation of accidents that do happen. He receives a report of every accident that occurs and he should follow the receiving of these reports with a thorough investigation of the accident which means inspection of the place where the accident occurred, talk with injured man, with the foreman and further interviewing of any others who might give light on where, how, or why the accident happened. His report covers his own views regarding the accident, and he should make recommendations as to how its recurrence can be prevented.

4—Co-operation with insurance and other outside agencies. The safety inspector should at all times accompany representatives from the state departments and insurance companies who come to inspect the plant. By doing this he can not only point out to the inspector the work done in the plant, but he can receive from him many ideas and anecdotes from other plants that will help him in his work.

5—Fire prevention. In some plants the same man handles fire inspection that handles safety. Except in a small plant, this is not the best arrangement. The safety inspector should have enough to do in working on all the phases of safety

[1]Presented at Paper and Pulp Section meeting of National Safety Council Congress, Hotel Stevens, Chicago, September 28, 1927.

"WILD SHEET"

can be greatly reduced by using

OLIVER SAVE-ALLS

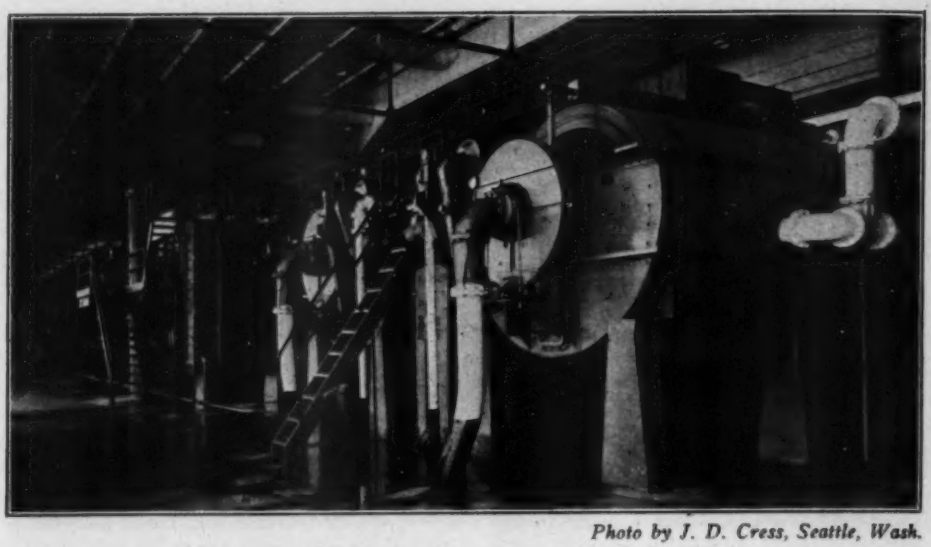


Photo by J. D. Cress, Seattle, Wash.

Oliver Save-Alls in a Pacific Coast Mill

OLIVERS return all Short Fibre to the Paper Machine.

Short Fibre is the ideal filler for closing and finishing the sheet.

OLIVERS turn sewer losses into profit by discharging only clear water to waste.

OLIVERS are equally as efficient as Lime Mud Washers, Deckers and Bleach Washers.

See page 378 in the 1927 Paper and Pulp Mill Catalogue.

Oliver Continuous Filter Co.

San Francisco
802 Cunard Building
Oakland, Calif.
4th & Madison Sts.

New York
1547, 33 W. 42nd St.
Johannesburg, South Africa
E. L. Bateman, Locarno House

London
11 Southampton Row
Honolulu, T. H.
W. A. Ramsay, Ltd.

unless, of course, he works in an industrial Utopia where all hazards are guarded, no one is careless, and there are never any accidents. Safety work in plants employing 1,000 workers or more is a one man job. It is not a job for a man who must devote part of his time in trying out fire extinguishers, testing fire alarms, or filling in on other odd jobs. If he is to be heart and soul with safety, he must do safety work and nothing else.

As I have said before, the safety inspector should report to a high official in the company, the higher in authority the better for him and for safety. He should not be forced to argue with a foreman of a department as to whether a guard is needed on some machine or not. If he, the inspector, after thorough investigation believes that there should be a guard, his word should be backed up solidly by his superior.

Everyone in the plant down to the lowest worker should know that what the inspector says goes—not that he should be feared, but he should above all things be respected.

Work of Safety Committees

The work of the plant safety committees, on the other hand, is of utmost importance in selling the safety idea to the workers throughout the organization. The suggestions made by the members of the plant committees should and do receive careful consideration. If a safety committee man makes a suggestion that is adopted, it so appears in the records, and when possible is given sufficient publicity so that all workers will know that the committee men are on the job and that their work is backed up and appreciated by those in authority. To bring up a good suggestion, have it receive only grudging attention, and then see the same idea later adopted as coming, say, from a foreman is discouraging to any safety committee man and may result in it being the last suggestion that he ever makes.

Plant safety committees should meet regularly at least once a month, oftener if necessary. In our plants the names of committee men are posted in the departments in which they work so that all employees know who the safety man is in their section. We also publish pictures and names of all committees in our plant paper so that they are known to every one and we encourage their fellow-workers to go to them with their safety suggestions.

The method of plant inspections by the safety committees vary in our different plants and from time to time. In some committees two or three members are delegated to act as unofficial inspectors for that month, while in others all members of the committee are delegated to inspection tours. These men are released from their jobs for as long a period as is necessary to make the inspections and a report of their findings and recommendations are made at the meetings. I believe that our most thorough investigations and the best recommendations are received when we ask for an inspection on special things such as cranes and chain falls; tractors, trucks and trailers; elevators; dangerous pulleys and belts; etc. In that way the committee men are looking for specific things instead of everything in general and better results are obtained.

We feel that our plant is well taken care of so far as mechanical safeguards are concerned. The plant committee men know this very well and are told that it is not the number of guards and other changes that a man suggests that determines his value as a safety man, but rather the example he sets by his own actions and the advice he gives his fellow-workers every day as he goes about his work.

When a new member is appointed he is sent a personal letter from the Central Safety Committee reading like this:

> "We are very glad indeed to notify you that at the last meeting of the Central Safety Committee you were appointed a member of the —— safety committee.
>
> "We ask that you assist in every was possible to make our plant as safe a place to work in as there is anywhere, that you caution any employee at any time who is doing an unsafe thing or working in a manner that may endanger himself or others.
>
> "Your committee holds regular meetings each month, notifications will be sent to you, and it is part of your job to attend every one of these meetings.
>
> "There are many ways in which you can assist in keeping your fellow-workmen from getting injured. Many of them you know, and others will be taken up at your committee meetings. Remember that over 90% of our accidents, in fact of all accidents, are caused by carelessness of the individual. Very few are caused by machines. Therefore, it is necessary to continually keep the safety viewpoint in everyone's mind.
>
> "We are enclosing a safety button which is the badge of the safety committee and we hope that you wear it at all times."

When a workman is serving on the committee, we try and interest him in safety work so that when his term is up he becomes a true disciple of safety. Consequently, when the membership is changed, another personal letter is sent to the member which reads somewhat as follows:

> "As is customary at this time, we are changing some of the members of our Safety Committee and appointing several new members. Your place on the committee has been taken by one of your fellow-workmen.
>
> "You know from your activities on the committee, it is by getting everyone's interest in safety that we can accomplish the most good. Consequently, we want you to continue to do everything in your power to help make our plant the safest place in the world to work in.
>
> "We know that from your experience on the committee you realize what a tremendous loss accidents are and how easily they can be prevented, if we can only keep the men thinking about being careful. We believe we can depend on you for your continued interest in this very important subject which affects every single man and woman that works for Bird & Son."

Authority of Safety Committee

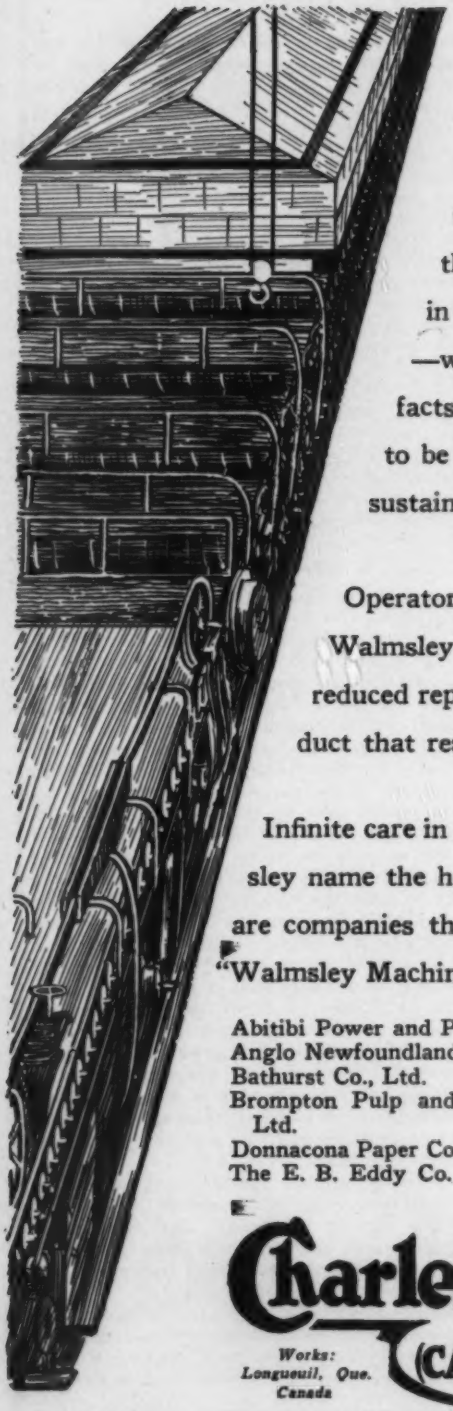
At the plant committee meetings all accidents are carefully gone over and discussed. We have at times had the safety committee sit as a court of judgment on workers who have been injured. The injured man, his foreman and others concerned with the accident are brought before the committee. All sides of the case are heard. The committee discusses any questions and finally passes judgment on the cause and responsibility of the accident. This decision is sometimes posted on the bulletin board or otherwise given publicity. Allowing the committee authority to set any real punishment is questionable, but it is certain that by bringing this before the committee it impresses the worker with the idea that his fellow workers and the company are taking it as a serious matter.

The safety committee men can be of invaluable aid in general every day co-operation in safety work. If horse-play starts in the absence of the foreman, it is the safety committee man who can tactfully say "Easy, Boys, or somebody will get hurt," or if he sees an unsafe practice being carried on he can easily bring it to the attention of the worker or the company and have it stopped. Further, the committee men have good ideas on safety publicity. If you are having a no-accident week or month, form a publicity committee of local safety committee men. They will often bring forth excellent ideas for publicity on such occasions. It is also a good idea in such cases and even in the general run of safety publicity to give the safety committees credit by signing notices, posters, etc., as coming from them.

At our plant we have designed a safety seal showing our safety button, a man representative of our safety committees and the words "The Sign of Vigilance." This sign appears on monthly record sheets of accidents, on a little safety newspaper published during the month and in the corner of a series of safety posters that we are issuing.

In general, while the foreman is frequently the authoritative link between the officials of the company including the safety inspector and the men in the mill, the plant safety committees are the invaluable co-operative links when used in the right way.

As Evidence —
The Record of Our Machines



Any company operating Walmsley News Print Machines—and there are now twelve using thirty-one of these machines in Canada and Newfoundland —will gladly give you actual facts showing Walmsley Machines to be unsurpassed for consistent and sustained operation at low cost.

Operators will grow enthusiastic over Walmsley's economy of operation—over the reduced repair bills and the perfect finished product that result from its sturdy construction.

Infinite care in the smallest detail has made the Walmsley name the hall-mark of excellence in its field. Here are companies that have found, by actual operation that "Walmsley Machines Excel."

Abitibi Power and Paper Co.
Anglo Newfoundland Co.
Bathurst Co., Ltd.
Brompton Pulp and Paper Co., Ltd.
Donnacona Paper Co.
The E. B. Eddy Co.
Newfoundland Pulp and Paper Co.
Powell River Co.
Price Bros. & Co.
Provincial Paper Mills Limited
Wayagamack News Limited
St. Maurice Valley Corporation

Charles Walmsley & Co. (CANADA) LIMITED

Works: Longueuil, Que. Canada

Office: Montreal, Que. Canada

Canadian News

No Further Pulpwood Leases

In a recent editorial on the dangers of over-expansion of the newsprint industry, the **Financial Post** of Toronto, one of the leading Canadian financial and business papers, recommends the restriction of leases of timber lands. Commenting on the present status and immediate outlook of the Canadian paper industry, it states in part as follows:

"The Canadian pulp and paper industry faces stern difficulties. Production is on a low scale. At the present price of newsprint this scale of operations is such that the mills cannot make sufficient allowance for depletion or pursue proper forestry methods. The bottom has dropped out of the market for mechanical pulp and prices for sulphite pulp are too low. These pulp mills cannot turn to the production of newsprint and so obtain an increased manufacturing profit. Instead they sell to United States newsprint mills which are in direct competition with the depressed Canadian newsprint mills.

"Large publishing or other United States interests, which have a market for newsprint, can come over to Canada, procure timber leases, erect mills and so prolong the period of hard times through which the industry is passing. Immediate action by the various governments involved is a necessity. The overexpansion can be stopped by the provincial and federal governments' refusal to grant further timber leases."

Montreal Man Heads Newfoundland Mill

E. A. Charlton has resigned his position as manager of the De Grasse Paper Co., Pyrites, N. Y., to become president of the Newfoundland Power and Paper Co., Corner Brook.

For some time he has been interested in the Newfoundland project, which includes taking over the Corner Brook mill, increasing its capacity by the installation of at least two additional paper machines, and the construction of another mill, of at least 200-tons daily capacity, in the Gander Valley.

QUEBEC

Arrangements have been made by the Canadian Pulp and Paper Association for the laying of the corner stone of the Cellulose Institute now being constructed on the McGill campus, in Montreal. The ceremony will take place on October 11th, and Hon. James A. Robb, Minister of Finance will officiate.

The allegation that wax paper manufacturers combined to charge exorbitant prices is made by Pilsener Beer, Ltd., Montreal, in a formal application to the Advisory Board on Tariff and Taxation for a reduction in the customs duties on waxed papers. The applicant company claims that United States prices range from six to ten cents per pound lower than Canadian prices and asks for a reduction in the duty to fifteen per cent.

Paper Industry in Strong Position

According to George Chahoon, Jr., president of Laurentide Co., in spite of the fact that the capacity of the Canadian newsprint mills is at present about 20 per cent in excess of demand, the industry is in a stronger position than it was two or three years ago; operators realize the existence of this over-capacity and there does not seem to be any tendency on their part to pile up large surplusses or do anything that would aggravate the situation.

President George H. Mead of Spanish River Pulp and Paper Mills considers that, so long as the mills are operated in such a way as to avoid overproduction and accumulation of an excess tonnage, the position of the industry will continue sound and healthy, in spite of the present excess of capacity over demand. In Mr. Mead's estimation the present situation is beneficial, in that it places a premium on sound management and economic operation, with a resultant decrease of manufacturing costs and the enforcement of every possible saving. Adjustments in other industries have brought prices to their bottom level, and Mr. Mead feels that, because of the very narrow margin of profit left, the newsprint industry is in the same position. There will undoubtedly be further reductions in the cost of manufacturing, due to improved methods and better operations, but against this tendency the industry faces a continually rising wood cost and the necessity for large expenditures in the protection of its forests from fire and other destructive agencies.

Quebec Pulp Deal to be Voted On

A special general meeting of shareholders of the Quebec Pulp and Paper Mills, Ltd., has been called for October 3rd, to consider, and if deemed advisable, to accept the offer of purchase submitted to the management of the company by Price Bros. & Co., and by Port Alfred Pulp & Paper Corp.

By the terms of the proposed purchase it is proposed to form a new company which will issue 7 per cent non-cumulative stock, preferred as to capital and dividends, not otherwise participating and non-voting, redeemable at par, to the extent of $7,000,000, closed issue, and junior securities at the discretion of the purchasers. No bonds shall be issued in connection with the purchase, but may be issued in the general way for the advantage of the company. The purchase price is comprised of $3,000,000 cash and the $7,000,000 preferred stock.

In a letter to shareholders, the board of directors state that they are unanimous in recommending acceptance of the offer and consider that it contains the best terms that could be obtained under present circumstances.

Orville F. Bryant has resigned from the Laurentide Co., with which he has been connected as chemical engineer for the past seven years, and has moved to St. John, N. B., where he has accepted the position of assistant to the manager with the Nashwaak Pulp and Paper Co.

Ross Engineering of Canada, Ltd., are installing at the big plant of the St. Maurice Valley Corp., at Cap de la Madeleine, a Baxter exhaust system for the grinders in conjunction with a Briner economizer installation for utilizing the vapor given off by the grinders to heat the grinder room. This system has been installed at several mills in the United States and on the Pacific Coast, but the St. Maurice installation is the first one in Eastern Canada.

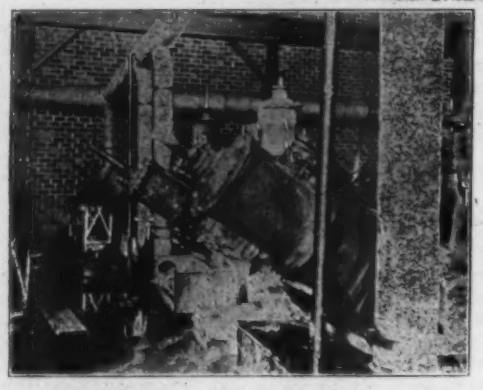
H. R. Wickenden

H. R. Wickenden, works manager of the Anticosti Corp., and a well known figure in engineering and pulp and paper circles, died recently. Mr. Wickenden was on vacation when he was taken ill.

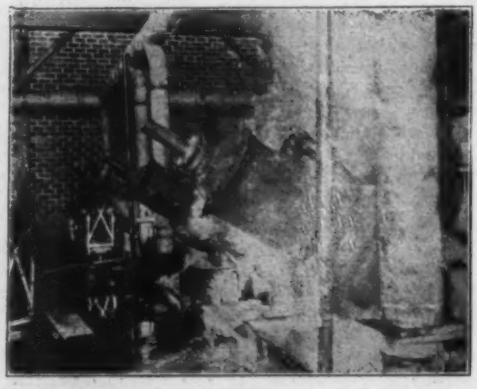
In the employ of the Wayagamack Pulp and Paper Co., Mr. Wickenden was sent to Sweden to further his knowledge of scientific forestry, and conducted investigations at the University of Stockholm. On his return to Canada he continued with the same company until about a year ago when, on the formation of the Anticosti Corp., he became works manager of that concern, living on the Island of Anticosti.

Knowing paper and pulp mill Heating and Ventilating problems as we do through our years of experience in this work exclusively, we fully realized the need for efficient exhaust apparatus for pocket grinders. We now announce the method that has proven entirely worthy of our strongest recommendation to the industry for this purpose:

BAXTER Pocket Grinder Exhaust Systems



Showing conditions at grinder with exhaust connection open.



Showing conditions at grinder with exhaust connection closed.

FIRST EASTERN INSTALLATION

St. Regis Paper Co.
Deferiet, N. Y.

Originally designed and installed in the Crown Willamette Paper Co., W. Linn, Oregon, by Charles Baxter, a practical paper maker, the Baxter System, for some years since has been successfully operating in a number of other prominent Pacific Coast mills. The installation on 28 Grinders at the St. Regis mill forecasts an even greater interest in this remarkably efficient exhaust method throughout the industry in the East.

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ROSS ENGINEERING OF CANADA, Limited
NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

He was a member of the Canadian Forestry Association, Quebec Forest Engineers and the Canadian Pulp and Paper Association.

Canipco News

Gatineau Power Co. is now one of the two leading power companies in Canada. It owns and operates in the province of Quebec thirteen hydro-electric developments on the Gatineau, Petite Blanche, Blanche, Petite Nation, Rouge, North and Onareau rivers, and on Gordon Creek. The plants have an aggregate designed capacity of over 600,000 horsepower, greater than the developed horsepower on the American side of Niagara Falls. The plants are interconnected by a system of modern high-tension transmission lines. Over 360 miles of high-tension distribution lines serve an area of over 4,800 square miles with a population of about 220,000.

Gatineau Power has inscribed an appeal against the decision handed down by the Quebec Public Service Commission last spring, rejecting the petition to expropriate Freeman Cross, at Farm Point. Cross owns and operates a small hydro-electric plant on Meach's Creek, where it flows into the Gatineau River, a short distance above the Chelsea power plant of Gatineau Power Co. The latter must expropriate the property in order to develop the full amount of power at Chelsea, as the raising of the level of the river to obtain the maximum head for which the power plant was designed would flood the Cross plant. Cross has filed a counter-motion asking for dismissal of the appeal.

The third unit in the Farmers' hydro-electric plant has been turned over and is supplying power to the Gatineau mill of Canadian International Paper. The first unit was put in operation on May 8 and the second on July 2.

Gatineau Power Co. has made a new issue of $18,500,000 first mortgage 5 per cent gold bonds at 97½, to yield over 5.16 per cent. The issue was offered simultaneously in Canada and in the United States.

It is reported that the management of the Bates Valve Bag Co. has decided to erect another plant at Three-Rivers, and is considering the erection of a plant in Ontario, at Windsor or Walkerville.

The Brompton Pulp and Paper Co. has disposed of its ownership of the Groveton Paper Co., of Groveton, N. H. Details of the deal are not available, but it is understood that M. N. Munro will act as manager of the Groveton mill.

Port Alfred Pulp and Paper Corp. last month issued $10,133,000 5½ per cent bonds and 1,000,000 pounds 5½ debentures, the proceeds of which will be used to provide funds for the acquisition of the corporation's interest in Quebec Pulp and Paper Mills, Ltd., to retire $7,925,500 presently outstanding first mortgage bonds, to retire $1,860,000 6 per cent deferred notes, and to pay off bank loans in their entirety. The corporation will thereby be placed in a strong liquid position, with its fixed charges substantially reduced.

Veteran employees of the Laurentide Co., whose services with the company ranged from 10 to 35 years, recently held a family celebration in honor of President George Chahoon, on his completion of twenty-five years' connection with the company, and presented him with a piece of silver and a parchment containing the names of the old employees. When Mr. Chahoon came to Grand 'Mère in 1902 as manager, the mill was turning out about 150 tons of paper on five machines. On the death of Sir William Van Horne he became president and gradually built up the organization to its present condition of efficiency.

It is reported that negotiations are in progress involving the purchase by Laurentide of the W. C. Edwards Pulp and Lumber Co., of Ottawa, the Hawkesbury Lumber Co., of Hawkesbury, Ont., and the Pembroke Lumber Co., of Pembroke, Ont. Although officials of the companies involved are reticent, negotiations are said to have been in progress for some time and it is thought there is every probability of the deal going through in the near future. In financial circles the proposed deal is regarded as a move to combat the continued expansion in the Ottawa Valley of the Canadian International Paper Co.

ONTARIO

Changes in Canadian Nashua Officers

R. A. Brown, who for some years has been manager of the Canadian Nashua Paper Co.'s plant at Peterboro, has been appointed manager of the Mid-West plant of the Nashua Paper Co., at Middletown, Ohio, and has removed to that city. Under the management of Mr. Brown, the Canadian Nashua plant made great strides and extended to take in as a subsidiary the Sealright Co., manufacturers of liquid proof cardboard containers.

John R. Marshall, who has resided in Peterboro for the last four years has been appointed to succeed Mr. Brown. He has been general sales manager, but with his new appointment, will still retain a primary interest in sales. R. H. Harding, who goes to Peterboro as production manager from Nashua, N. H., has been a resident of Canada before, having been connected at one time with the Spanish River Pulp and Paper Mills.

The work of driving 2,500 piles has begun in connection with the foundations of the coffer dam which a contracting firm is constructing at the plant of the Thunder Bay Paper Co., at Port Arthur. The construction of camps for the workmen, assembling of material and completing of preliminary arrangements for the building of the dam and dock slip has all taken up considerable time, but now that the work has been started it will be rushed to completion.

Hon. William Finlayson, Minister of Lands and Forest for Ontario, recently announced that an old-established lumber company in New Ontario is negotiating with the Department for consolidation of several allied industries in the Sioux Lookout district. Possible construction of new pulp and paper mills, creation of a new company and the rehabilitation of an industry that has suffered handicaps since the war are involved in the project. The promoters of the new concern are Alexander McDougall, of Ottawa, and Bernard R. Hepburn, of Picton. The new company is called the Northwest Ontario Development Co., Ltd.

W. J. Trimble, of Toronto, has completed work on the No. 1 machine room at the Montrose Division of Provincial Papers, Ltd., at Thorold. The work comprised practically the reconstruction of the building.

Over 200 men are now at work on the site of the Great Lakes paper mill on the Kaministiquia River near Fort William. Concrete is being poured and good progress made on the walls. It is expected the new mill will be ready for operation by May, 1928.

The Thunder Bay Paper Co.'s large newsprint machine is now running satisfactorily at a speed of 850 feet per minute, and making about 95 tons of paper a day. It is expected that in the near future it will have been speeded up to over 1,000 feet per minute.

Charles E. Read, of Ottawa, one of the directors of the Spanish River Pulp and Paper Mills and allied interests, died at Ottawa last month.

The C. V. Syrett Paper Co., of Toronto, has leased for a long term of years premises at the southwest corner of Church and Front Streets, Toronto, and is having them remodeled to suit its particular requirements. This will give the company more commodious quarters for its expanding business and will afford exceptional shipping facilities.

On September 26th, Premier G. Howard Ferguson, of Ontario, laid the cornerstone of the 550-ton paper mill of the

Builders of High Class

PAPER MAKING MACHINERY

I. P. Morris and Pelton Hydraulic Turbines and Accessories.

Modern High Speed Newsprint Machines embodying the following Special Features:

Van de Carr Slices.

Oscillating Suction Boxes.

Beloit Type Removable Fourdrinier

Suction Couch Rolls (Millspaugh Type)

First and Second Suction Press Rolls (Millspaugh Type)

Canadian Granite Top Press Rolls

Patented Internal Cantilever Anti-friction bearings for Table, Wire and Wet Felt Rolls.

Special Mechanism for driving Dryers, assuring safe running at high speeds.

P 27

DOMINION ENGINEERING WORKS LIMITED

MONTREAL · CANADA

Spruce Falls Pulp and Paper Co., at Kapuskasing, Northern Ontario. According to F. J. Sensennbrenner, president of the company, the mill, which is to be the largest in the province, will be completed about July of next year. He declared that the industry would eventually result in an annual payroll of $2,500,000.

E. W. Backus, W. T. Backus and Seymour Brooks were hosts to 125 United States publishers and railway men who recently paid a visit to Kenora, International Falls, Fort Frances and Fort William. The visitors were particularly impressed with the projects at the head of the lakes, where a large paper mill is at present under construction.

Official announcement has been made of the redemption on the 1st of November next of the outstanding first mortgage 6 per cent bonds of Provincial Paper Mills, Ltd., amounting to $1,350,000. The price to be paid is 105. The bonds are being called in in order to complete the purchase arrangement that was entered into last April.

A. G. Durgin, formerly with the Spanish River Pulp and Paper Mills at Sault Ste. Marie, has been appointed general superintendent of the sulphite and paper mill at Kapuskasing.

W. Brubacher from the Niagara, Wis., mill of the Kimberly-Clarke Co., has gone to Kapuskasing as sulphite superintendent, to fill the vacancy created by the departure of W. H. Kraske.

MANITOBA

Power Site Reverts to Government

The recently announced plan for a large power development and paper mill at White Mud Falls, on the Nelson River, has fallen down. Over a year ago a priority lease for the valuable power was secured by J. J. Menzies, of Winnipeg, who made surveys and conducted negotiations looking to the building of a paper mill.

They had not reached any form of finality when the power lease expired some months ago. Since then two brief extensions have been made, with no definite results, and now the power site reverts to the government.

Survey of 15,000 square miles of timber land lying east of Lake Winnipeg, from which the Manitoba Paper Co. will draw its pulpwood supply, shows that unrecorded fires dating back 50 years and more have ravaged huge tracts of land and taken a heavy toll of forest products in the province's hinterland. Pulpwood berth No. 2 suffered most from the fires, but there is no danger of the mill going short of supplies. The survey which has just been completed is one of unique interest as it is one of the largest ever undertaken on this continent. It has demonstrated the thoroughness of combined aerial and ground survey work.

NEW BRUNSWICK

Lumber Deal Increases Fraser Holdings

According to a Fredericton dispatch the largest transfer of milling property and timber lands in that section of the province in a number of years was recently completed when the mill of Alfred West at Cole's Island, Queen's County, on the Washademoak River and extensive holdings of lands on Canaan River were sold to another lumbering business.

C. Atkinson, M. L. A., of Fredericton, was largely instrumental in putting the deal through. Mr. Atkinson, however, was non-committal when asked if the purchasers were Fraser Companies, Ltd., or other large interests at present active

Even an "Expert" may Guess Wrong!

But—the *Cambridge Surface Pyrometer* never guesses. Instantly and correctly it indicates the surface temperature of Drying Rolls, Calenders and all heated surfaces.

Simply press the flexible thermo-couple against the roll and read the temperature on the dial. Any workman can use it, without stopping the machine. The instrument as shown, has an extension rod which safely enables testing of moving rolls across their entire surface. Standard range is 50° to 400° F.

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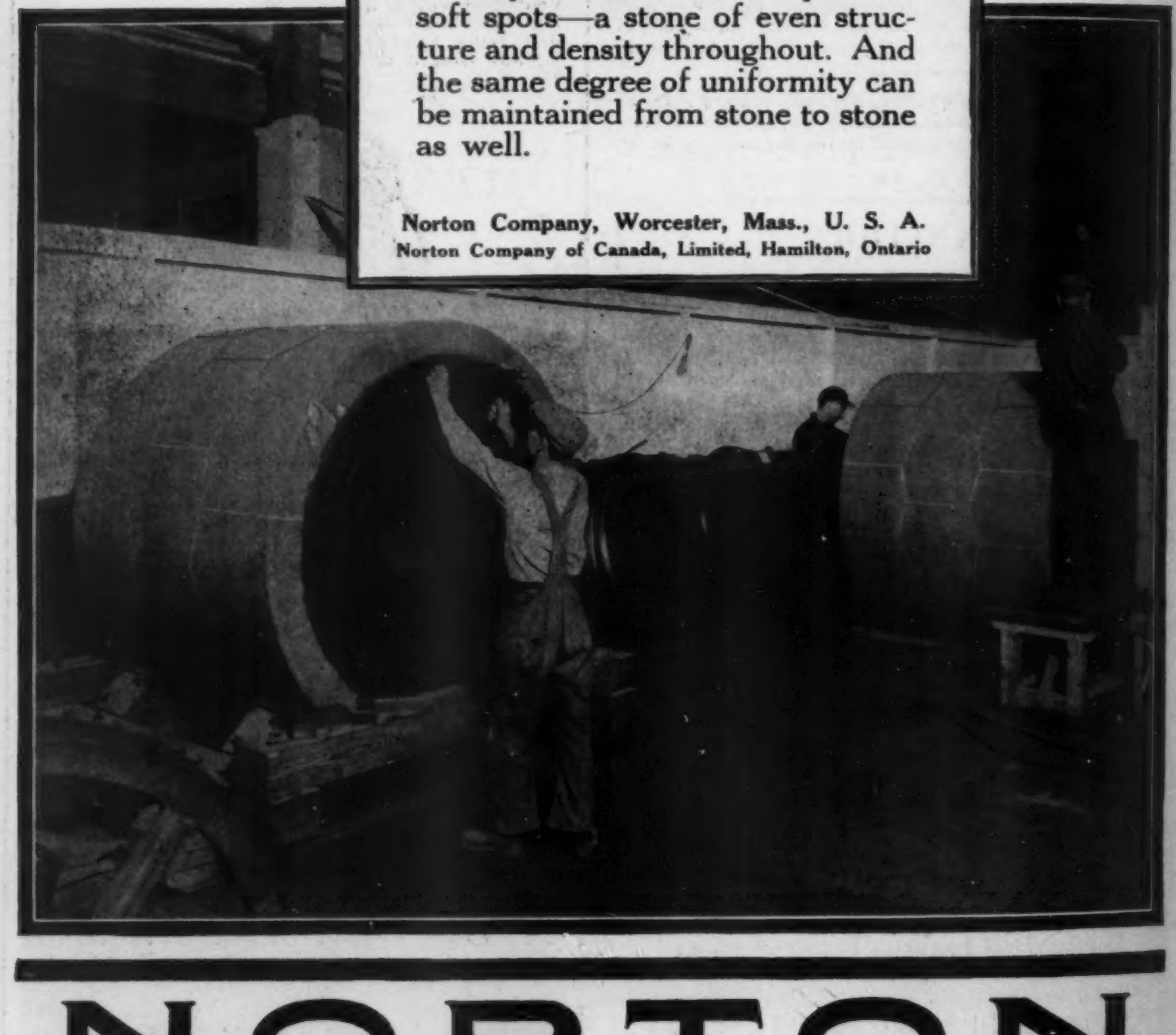
Norton Company of Canada, Limited, Hamilton, Ontario



NORTON

Grinding Wheels
Grinding Machines

Refractories-Floor and Stair Tiles

in the province. The amount involved approaches $100,000. The impression prevails that Fraser Companies are the new owners of the property.

Bathurst Asks Fixed Assessment

At a recent meeting of the town council of Bathurst, Angus McLean, president of the Bathurst Co., Ltd., appeared in connection with the valuation and assessment of the company's property which has been the subject of some controversy. Mr. McLean explained that the company has decided upon expansion, but before proceeding with further development he wished to have a fixed valuation for a period of years.

He asked that a fixed valuation of $275,000 be set on the pulp and paper mills for a period of thirty-two years, beginning with 1928; and that for school purposes the valuation be started at $300,000 with an increase to $400,000 when the first machine of the second unit is installed, and a further increase to $500,000 when the second machine of the unit is installed. After some consideration the matter, particularly with reference to school valuation, was referred to a committee to be dealt with later.

A joint meeting of the town council and school board will be held. Mr. McLean made it quite clear that a fixed valuation of the mills, as set forth in the new proposal, must be endorsed in full.

An investigation is being carried out under the sponsorship of the Canadian Pacific Railway on the efficiency of New Brunswick limestone for use in the production of pulp. H. H. Claudet, an engineer on the development staff of the railway company, has been detailed to make this investigation, which calls for inspections of various limestone areas in the province and tests as to the availibility of the lime.

International Paper Selects Dalhousie

Concrete posts have been installed in the earth on the site of the new pulp and paper mill of International Paper at Dalhousie. The company's engineers have completed the survey for the new building, the actual site being reported as chosen by them after several weeks of investigation.

The outlook is that although it may not be possible to make much headway in the construction operations before the advent of severe weather, a good start will be made towards completion of the work the latter part of next year. The building of the mill will create the necessity of revamping of the business section of the town, as the site is understood to be in the center of the community.

Paper Salesmen Will Meet in Chicago

The Salesmen's Association of the Paper Industry will hold its annual fall luncheon at 12:30 P. M., Tuesday, October 25, at the Congress Hotel, Chicago, during the week of the National Paper Trade Association meetings, when a large attendance of salesmen from all parts of the country is expected. President Coy has secured Henry A. Wise, general counsel of the Import Committee of the American Paper Industry, as speaker at the luncheon. Because of its active part in the original organization of the Import Committee, Mr. Wise's account of the work of preventing unfair competition from foreign paper will be of particular interest to the members of the Salesmen's Association.

Doctor Wise Elected Chairman of Cellulose Division

At the Detroit meeting of the American Chemical Society great interest was taken in the proceedings of the Cellulose Division, the attendance being unusually good. An outline of the work transacted and papers read was given in the September issue of THE PAPER INDUSTRY.

The officers of the Cellulose Division elected for the coming year are: Chairman, Dr. Louis E. Wise, professor of Forest Chemistry in the New York State College of Forestry at Syracuse University; Vice Chairman, John L. Parsons, Hammermill Paper Company, Erie, Pa.; Secretary, E. C. Sherrard; Executive Committee, Bjarne Johnsen, H. LeB. Gray.

RODNEY HUNT

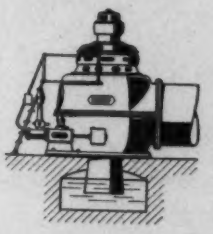
How Old is Your Turbine Water Wheel ?

THERE is hardly a water wheel equipment installed previous to 1920 which cannot be readily improved to give

10% to 20%

more power

with practically the same water consumption or a very marked saving of water with the same power. *Improvements pay for themselves.*



A "Rodney Hunt" Engineer will show you how with no obligation

Rodney Hunt Machine Co.
38 River Street, Orange, Mass.

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The Experience of 50 Years is of Value to You

RYTHER AND PRINGLE COMPANY
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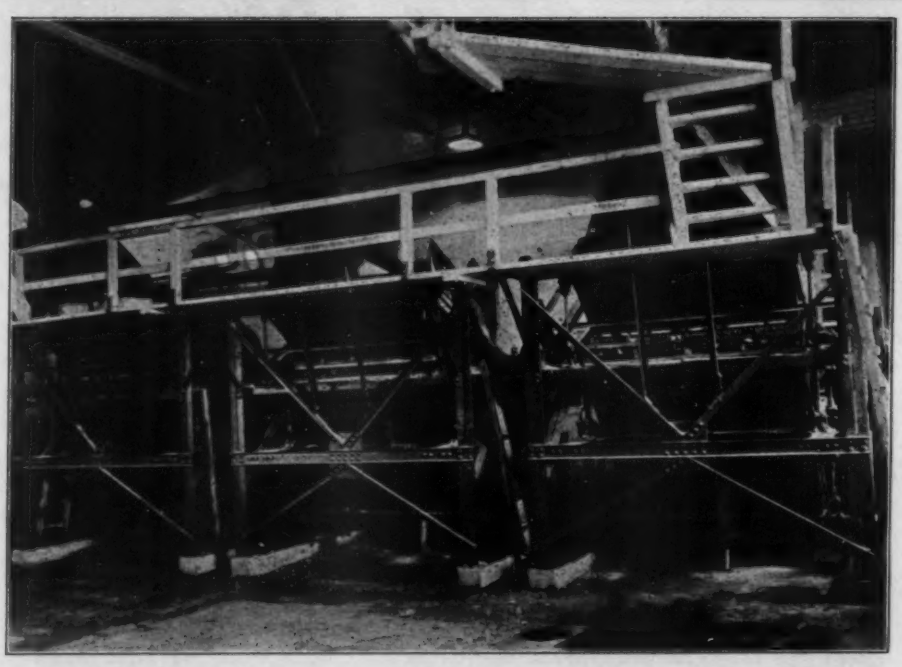
RYTHER CHIP SCREEN



Triple Battery Arrangement for Multiple Operation.

Chips from Three Chippers Delivered through Central Elevator and Chutes to Chip Screens.

Screened Chips Collected Below Floor on Belt Conveyor and Delivered to Chip Bin.

FOR CANADA REFER

CANADIAN INGERSOLL-RAND COMPANY, LIMITED

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BRITISH CORRESPONDENCE

Trade Conditions

General conditions in the paper industry are not altogether satisfactory. In the woodfree section, a varying state of affairs is found, some mills being busy and others slack. Woodfree prices are firmly standardied, and although the English level is low, foreign mills are not hesitating to cut below it if possible. The wholesale paper merchants are giving good support to the home mills.

Esparto papermakers are experiencing a good home demand, but export trade is slow. Advances in branding have been made in this section, and most of the leading mills are now adopting names for their leading qualities. The paper merchants are beginning to show a willingness to co-operate with the manufacturers in the marketing of branded papers, but their failure to adopt universally a system of price standardization, and the lack of co-ordination between English and Scottish prices are obstacles.

Export and Import Returns—The export and import returns for August, given below, indicate that a recovery in the paper industry is badly needed. The balance is unfavorable compared with the January-August period last year, and both sets of figures dealing with August show a particularly poor month. These reports, of course, do not throw any light, or at least very little, on the condition of the home market.

Decreases in the importation of wrapping paper show further signs of increased production in the home mills. There has been a slight falling off in demand for esparto; but no further reductions in quotations for esparto grass is expected. The fine paper manufacturers have reported very little change, but there is a general belief that business will recover during the next few weeks. Many newsprint manufacturers are finding business very difficult to secure. The world demand for newsprint has declined, and for the time being supply is in excess of demand. The fact that Canada is extending her markets is making the British newsprint mills realize that more adequate equipment and improved organization will be necessary if they are to keep a firm grasp of their markets overseas. It is anticipated by leaders in the trade that both paper output and paper consumption will show some considerable progress in the near future.

The undermentioned figures indicate the state of affairs in imports and exports for August in relation to the corresponding month of last year.

	August 1927	Inc. (+) or Dec. (−) as compared with 1926.	as compared with 1925.
Paper-making Materials	1,127,357	+133,844	+206,242
Paper and Cardboard	1,324,014	−167,551	−35,280

	Aug., 1925.	Aug., 1926.	Aug., 1927.
Wood pulp, tons	112,087	120,482	137,650
Paper, cwt.	1,253,440	1,480,184	1,393,453

	August 1927	Inc. (+) or Dec. (−) as compared with 1926.	as compared with 1925.
Paper-making Materials	104,440	−8,638	−24,278
Paper and Cardboard	728,637	−122,296	−25,411

	Aug., 1925.	Aug., 1926.	Aug., 1927.
Paper-making materials, tons.	13,036	12,992	13,890
Paper & cardboard, cwt.	360,412	458,283	362,157

Future of Raw Materials Discussed at Meeting

The predominant subject for discussion in paper trade circles during the past month has been the future supplies of raw materials. Professor Fraser Story, editor of the Empire Forestry Journal, speaking before the Forestry Section of the British Association for the Advancement of Science, at its recent annual meeting at Leeds, reviewed the whole world situation.

He said that the enormous forests in Russia were difficult of access, in frozen belts, or of stunted growth, and while

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1897 - 1927

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Bristol's Recording Pressure Gauge

is still on active duty 24 hours every day at the Manayunk Pumping Station, Philadelphia.

NO REPAIRS have been required during these three decades of service. Charts and ink are the only items appearing on the maintenance expense list.

Truly a fine record; one which reflects the excellent quality, and dependability of material and workmanship which has placed Bristol's Recording Instruments above the ordinary.

A survey of instrument needs in your plant made by Bristol Sales Engineers may bring out many interesting ideas for improving present operating conditions. Write.

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BRISTOL'S RECORDING INSTRUMENTS

Government without Paper

THE Rosetta Stone, engraved by order of Ptolemy Epiphanes, was an effective enough legal document in its day. For in 196 B. C., no generous supply of paper existed for the dissemination of government information. Despotic rule does not have much need for paper.

Things have changed. Taxation without representation is out of fashion. Rule without consent of the governed has a hard road to travel. Information, prompt and detailed, is expected when government makes a move that affects the welfare of citizens. Paper makes this diffusion of official information possible.

Hereditary domination of lives and property of subjects went suitably with proclamations cut in stone and baked in clay. Democracy and paper go hand in hand.

Hammermill Paper Company

Erie, Pennsylvania

there might be a hundred acres of soft woods available, once it was deforested, it would take hundreds of years to re-establish. Conditions were more satisfactory in Sweden and Finland, for output was regulated in a satisfactory manner, and was likely to be maintained at its present level. The annual consumption in Europe was now 9,000 million cubic feet, and the growth only 6,000 million cubic feet—an annual deficiency of 3,000 million cubic feet.

Professor Story, in referring to Canada, said that already three-quarters of the merchandise timber had disappeared under the combined attacks of lumbermen, settlers, forest fires, and insect pests. It was estimated that there still existed 100,000 million cubic feet of soft wood, and this was 95 per cent of all that there is in the British Empire. The yearly drain was 4,000 million cubic feet, but the waste from fires and other destructive agenceis was so great that of this only 900,000,000 was used commercially. He estimated that, at this rate, the forests would not last more than another twenty-five years.

The professor pointed out that the demand for newsprint had increased in the last fourteen years from 350,000 tons to 2,000,000 tons per year, one million tons of which had been added in the last five years. Reckoning things out at the present rate of consumption, supplies of raw materials would last not more than thirty-seven years, and many years before that period, Great Britain, being absolutely depended for her supplies from outside sources, would begin to feel the pinch.

Mr. W. Raitt, Cellulose Expert to the Government of India, in a lecture delivered before the same association, appeared to be, on the whole, in agreement with Professor Story's findings, but, as has already been reported in the British Correspondence column, he sees a way out by the use of bamboo pulp, which he considers may be made in sufficiently large quantities in India and Burmah alone to form a complete substitute for wood-pulp, and to take its place if and when the forests of Canada and Northern Europe are exhausted.

Future Use of Timber in Mines Discussed

It is interesting to read the report for 1926 of His Majesty's Chief Inspector of Mines, issued last week by the Government Stationery Office, which deals, among other things, with the advisability of replacing the wooden pit props at present in general use by steel arches for the support of roads in mines, and steel props for the support of working places. He says: "If actual trials of steel supports were undertaken in every mine in the country, and carried out fairly and with goodwill, I am certain that the results would show that such supports are preferable to timber supports, and that with their adoption not only will the number of accidents from falls be diminished, but also considerable economies in working costs be realized."

It has been suggested by one Forestry authority, after reading this report, that the replacement of wooden pit props by steel supports would release a by no means negligible quantity of wood which would be available for pulp-producing purposes, and thus a change of constructional material in coal mines may lessen to some extent the danger of diminished supplies of wood for newsprint purposes.

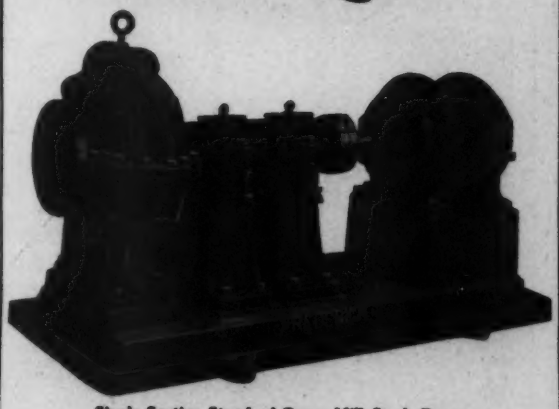
Commenting on the question of the possibilities of a shortage in the not far distant future, one trade journal has suggested that some means might be introduced for eliminating the terrible waste of used newsprint. The writer on the subject concludes: "The waste is terrible—newspapers go from home to local dust incinerator. Yet, after the tin and lead-foil collection, why not papers?"

MICHIGAN NEWS

John Powell Joins Rex Mill

John W. Powell, well known in the Kalamazoo valley paper district, and for the past years associated with the sales departments of the Monarch Paper Co., and Allied Paper Mills, resigned his position some two weeks ago with the

Frederick
Centrifugal
Pumps



Single-Suction Standard Paper Mill Stock Pump

If You Are Not Using Frederick Stock Pumps, Here's Something to Think About

How efficiently will your pumps handle 4% stock?

How efficiently will they handle 6% stock?

How often have you had mechanical trouble with them?

How good was their company's service on them?

How many delays have they caused, either through mechanical troubles or clogging?

If you can answer these questions, and then compare the results with the service records of Frederick Stock Pumps, we believe you will discover facts worth your while to know.

Our Standard Stock Pump handles stocks of consistencies up to 4% with excellent efficiency. Our Super-Stock Pump will efficiently handle 6% stock.

There is a Type of Frederick Pump Suitable to Every Need of a Paper-Mill

The Frederick Iron & Steel Company
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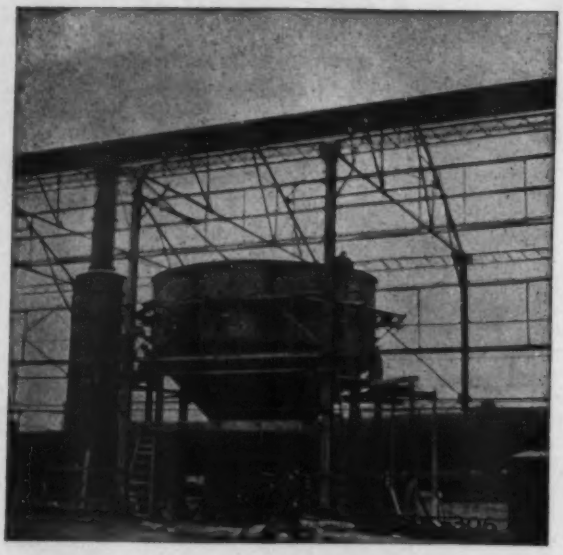
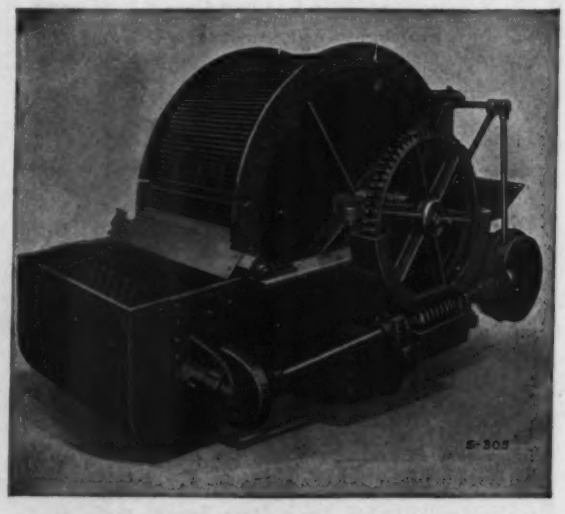
Pulp Mill Recovery Systems



View of caustic plant under construction, showing Swenson-Mount Causticizer, Decanter and Lime Kiln.



Swenson-Mount Rotary Vacuum Filter with resludger for continuous handling and washing of lime sludge.

The rapidly increasing trend toward recovery in soda and sulphate pulp mills has been greatly increased by the development and improvement in the Swenson recovery systems. For years the Swenson Evaporator Company has developed and improved methods of recovery in pulp mills, and with the addition of the Mount line the scope of Swenson service is greatly increased. Whether you are now using the recovery system or not, you should investigate the many advantages to be found in the Swenson and Mount systems. Our engineers will gladly submit layouts and full description of equipment recommended to meet your particular requirements.

ESTABLISHED 1889

SWENSON

EVAPORATOR COMPANY

(Subsidiary of Whiting Corp.)

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(Chicago Suburb)

Sales Offices in New York, Chicago, Buffalo, Detroit and San Francisco

Mount processes for alkali manufacture or recovery.

Mount vacuum filters.

ESTABLISHED 1889

60 Industries Already Use Brown Electric Flow Meters

Industrial concerns, leaders in their industry, are users of Brown Electric Flow Meters. Allis Chalmers, American Smelting & Refining, Bethlehem Steel, Fisher Body, Marquette Cement, National Biscuit, Packard Motor, Worthington Pump and scores of such companies appreciate the advantages of Brown Electric Flow Meters under their own plant conditions.

The inductance bridge principle, the automatic recording planimeter, inherent independence of voltage changes, and freedom from mechanical and electrical complications—these features have proven successful in over 500 installations. Write for Catalogue 20.

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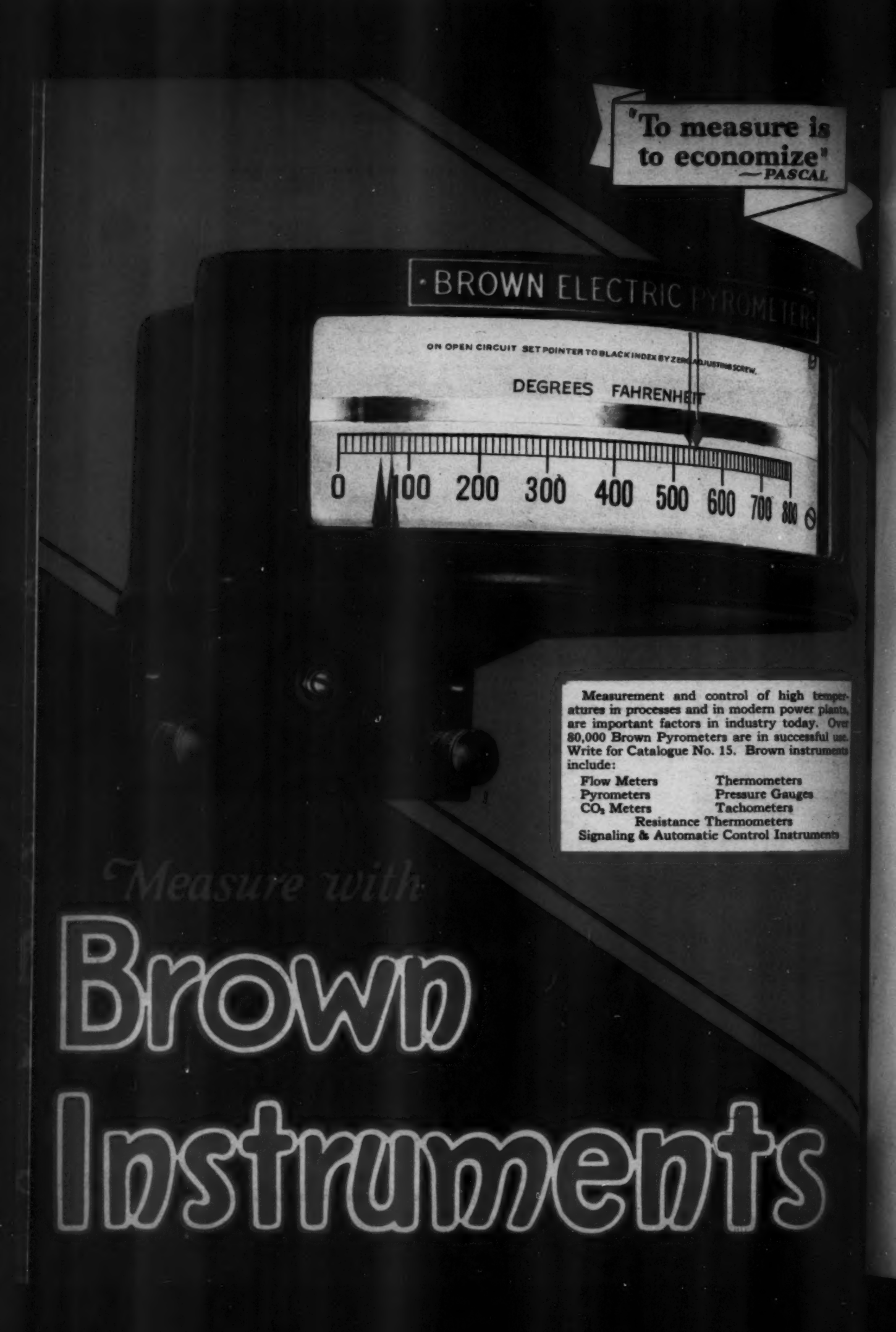
Branches in 18 principal cities

"To measure is to economize"
— PASCAL

See Next Page

Brown Electric Flow Meters

on the Inductance Bridge Principle


"To measure is to economize"
—PASCAL
BROWN ELECTRIC PYROMETERS
ON OPEN CIRCUIT SET POINTER TO BLACK INDEX BY ZERO ADJUSTING SCREW.
DEGREES FAHRENHEIT
0 100 200 300 400 500 600 700 800
Measurement and control of high temperatures in processes and in modern power plants, are important factors in industry today. Over 80,000 Brown Pyrometers are in successful use. Write for Catalogue No. 15. Brown instruments include:
Flow Meters
Pyrometers
CO_2 Meters
Thermometers
Pressure Gauges
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Signaling & Automatic Control Instruments
Measure with
Brown
Instruments

latter concern to accept a similar post with the Rex Paper Co.

He assumed full charge of sales October 1st, according to Merrill B. King, president of the Rex Paper Co. John R. Robinson, former sales manager, has returned to Chicago to engage in the paper jobbing business.

Mill Cost Body Meets

Bonus systems as practiced in their respective industries were discussed at the most recent session of the Cost and Technical Association of the Paper Industry, Kalamazoo Valley local, held Sept. 28, with Paul Kellogg of the Kalamazoo Stationery Co., and Ralph J. Hayward of the Kalamazoo Vegetable Parchment Co., as speakers.

The first named concern employs the cash and bonus system, while the K. V. P. uses a system of their own origination. Mr. Hayward predicted that before very long every paper mill in the valley would be using some sort of profit sharing method in order to stimulate the help to increased production and better products.

Allied Paper Mills, Kalamazoo, Mich., announce the appointment of James B. Grinling as General Sales Manager, effective October 1st. Mr. Grinling has been in the Sales Department of Allied Mills since the end of the World War.

There will be a meeting of the Wood Industries Division of the American Society of Mechanical Engineers at Grand Rapids on October 17 and 18, which will be of especial interest to those engaged in the woodworking industries and the fabrication of wood products.

NEW YORK CITY NEWS

Union Bag Expansion Plans

The Union Bag and Paper Corporation, with principal offices in New York City, has completed arrangements for financing of its expansion program through the sale to local bankers of approximately $3,000,000 worth of six per cent five-year bonds. In line with the plans for operating economies and safeguarding of its supplies of raw material, the company has formed a subsidiary to be known as the Union Bag and Paper Power Company which is acquiring hydro and steam electric properties at Hudson Falls, N. Y., and deep water frontage at Tacoma, Wash. A modern kraft paper mill will be erected at Tacoma at a cost of $2,200,000.

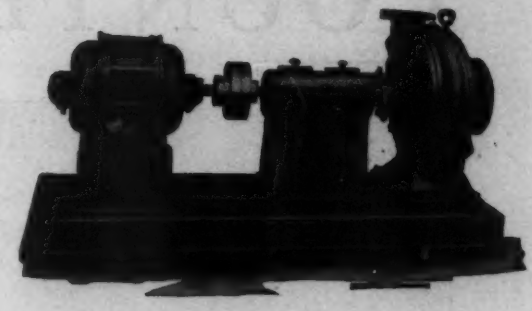
C. R. McMillen was elected president of the Union Bag and Paper Corporation, succeeding M. B. Wallace who was made chairman of the Board of Directors, at a meeting of directors a few days ago. August Heckscher, heretofore chairman of the Board, was made chairman of the executive committee. W. F. Quayle was elected treasurer.

The Ruberoid Company, manufacturer of roofing papers, declared an initial dividend of $1 on its common stock, payable September 25 to holders of record of September 21.

Peter Cardinale, senior member of the firm of Peter Cardinale & Son, Inc., packers of paper mill supplies of Hoboken, N. J., and a pioneer in the waste paper trade of the metropolitan district, died in St. Mary's Hospital, Hoboken, on September 17 after a brief illness. He was 77 years old, and had been in the paper stock business for 45 years and was widely known among paper and board manufacturers.

The United Paperboard Company, Inc., with principal offices in New York City, reports for the year ended May 28 net incomes of $88,185 after taxes, depreciation and other charges, compared with $292,528 in the preceding year. This is equivalent to 7 cents a share on 120,000 shares of common stock, after preferred dividends, against $1.78 a share in the previous year.

E. Butterworth & Co., Inc., dealers in foreign and domestic



Keeps Heavy Stock Moving

Stocks of 5% and greater consistency are handled efficiently and without trouble by the Warren Stuff Pump.

Designed by engineers thoroughly familiar with pulp and paper mill conditions, this stuff pump moves the stock faster, does not require attention and will not clog.

Easily renewable case liners make it possible to maintain a close running clearance between the impeller and the sides—an original Warren feature which assures sustained high efficiency during the long life of the pump.

Let us tell you what Warren Stuff Pumps have done handling your particular kind of stock and what they can do for you. Write for complete Bulletins.

WARREN

Warren

Steam Pump Company

Incorporated

Warren, Mass.

Atlanta, Boston, Charlotte, Chicago, Cleveland, Dallas, New Orleans, New York, Oklahoma City, Philadelphia, Pittsburgh, St. Louis, St. Paul, San Francisco, Scranton, Toronto

1264

COUNTER ROLLS

RIGHT OFF THE END OF YOUR PAPER MACHINE

For cleanly cut, accurately wound counter rolls, right off the end of your paper machine let us install a CAMACHINE 18. It will slit and wind counter rolls dependably and well. It will keep ahead of your paper machine, whatever its speed, when running 9 inch diameter rolls with frequent changes of slitting width. In a word--for counter rolls--a CAMACHINE.

Our liberal sales policy will permit your trying out a CAMACHINE for 30 days without obligating yourself to buy, so give us the opportunity of proving to you that CAMACHINES are all we claim them to be.

CAMERON MACHINE COMPANY
61 POPLAR STREET, BROOKLYN, N.Y., U.S.A.

papermakers' supplies of 15 East Twenty-sixth street, New York, announce with profound regrets the death of William F. Dodge, Sr., at his home in England on August 30. Mr. Dodge was a director of Edwin Butterworth & Co., Ltd., of Manchester and Liverpool, and was 72 years of age at the time of his death. He was connected with the firm for 59 years.

For the coming year Major O. M. Porter, assistant secretary of the American Paper and Pulp Association, will serve as secretary of the Trade Association Executives in New York City, an organization of managers and secretaries of national and local trade associations in the City of New York. Tihs organization meets monthly at luncheon at the Hotel Astor, where questions and problems of vital importance in trade association work are presented and discussed. During the past six years Emmett H. Naylor, of the Writing Paper Manufacturers Association, Hugh P. Baker, of the American Paper and Pulp Association, and R. S. Kellogg, of the News Print Service Bureau, have served as presidents of the organization.

The Albemarle Paper Manufacturing Company has removed its New York City sales offices from the fourth to the sixth floor of 280 Broadway, where more commodious quarters are occupied.

NORTHERN NEW YORK NEWS

Valentine Heads Bagley & Sewall

Charles W. Valentine, vice president of the Bagley & Sewall Co., was elected president of the company to succeed the late Stuart D. Lansing. Other officers ars: Edward S. Lansing, vice president; Clarence E. Kinne, vice president; Charles D. Bingham, treasurer, and Carroll L. Thompson, secretary and assistant treasurer.

Mr. Valentine became associated with the Bagley and Sewall Co., in 1904, was elected secretary in 1913 and vice president in 1915. Mr. Kinne was former secretary of the company and Mr. Carroll, associated with the company since 1907, has been assistant to the treasurer. Edward S. Lansing, son of the late Mr. Lansing has been associated with the company since 1916.

James E. Mitchell

James E. Mitchell, president and treasurer of the Utica Paper Co., Inc., died suddenly at his home in Utica while listening to the broadcasting of the Tunney-Dempsey fight on Sept. 22.

Mr. Mitchell, 48 years old, organized the Utica Paper Co. 24 years ago. Several years ago he organized the American Toilet Paper Co., of which he had since been president and treasurer. In March, the Utica Paper Co. was merged with the Little Falls Paper Co., and Mr. Mitchell became president. He was also president of the Utica Board of Education.

Pulpwood shipments on the St. Lawrence River for August showed an increase of more than 50,000 tons over the shipments of August of last year. A large part of this pulpwood comes from Canada for use in Northern New York mills.

New York State Program of Reforestation

The New York State Development Assoc., Inc., recently formed for the conservation and utilization of the resources of upper New York State, has announced a comprehensive program of reforestation.

It is planned to reforest 1,700,000 acres of land in the northern section of the state, during which time more than a billion trees will be set out. President John N. Carlisle of the Northern New York Utilities pointed out that the paper mills in Northern New York pay out more than $9,000,000 each year in wages and that if this industry is to be kept in Northern New York there must be a supply of raw material.

Photo shows a REEVES Transmission driving a paper cutter at the Southworth Company, Mittineague, Mass.

Accurate, Steady Graduations *of* Speeds!

THOUSANDS of paper manufacturers all over the world have eliminated waste in production by installing the REEVES Variable Speed Transmission and getting *accurate* speed control.

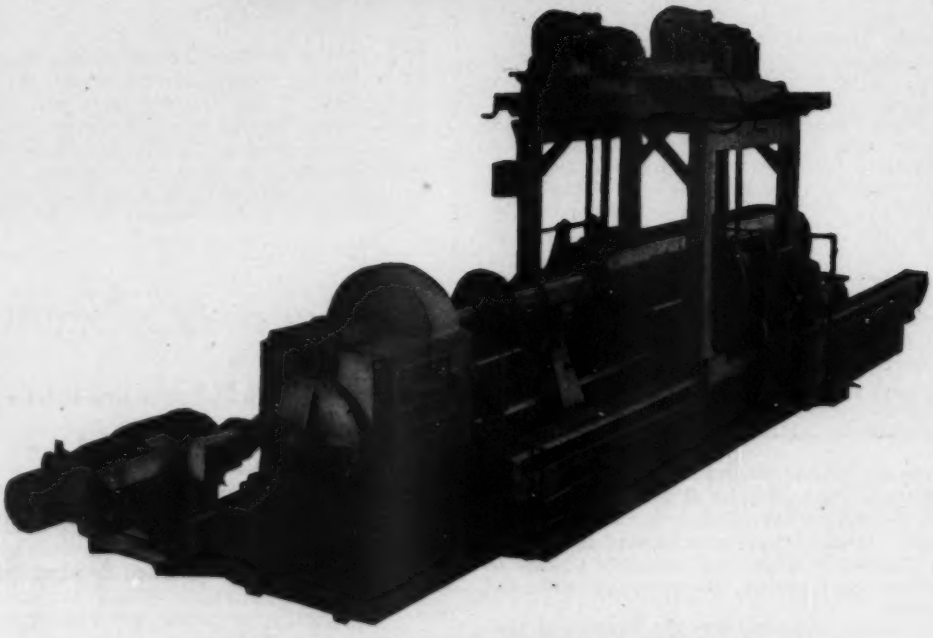
For instance, when a REEVES operates a paper cutter, the feed rolls run at a constant speed, and the speed of the knife is regulated to cut exactly the length of sheet desired. This simple, inexpensive device will run at any speed described between fastest and slowest so you can cut any length sheet at any time. Send for our catalog A-66 which gives full information.

REEVES PULLEY COMPANY
Established 1887
COLUMBUS, INDIANA

THE REEVES Transmission is a simple, compact mechanical device which receives power at a constant speed and delivers it at any speed desired to any machine or group. It will maintain one set speed indefinitely, or may be changed instantly to meet any different operating condition. Accurate and dependable, always.

REEVES
Variable Speed Transmission

FARREL



FARREL 32″ NEW TYPE ROLL GRINDER

These machines are built in 24″, 32″, 36″ and 42″ sizes, all with GEARED HEAD, NEW CROWNING DEVICE AND AUTOMATIC LUBRICATION.

FARREL CALENDERS

ARE MADE WITH HYDRAULIC, ELECTRIC OR RATCHET LIFT all operated from the floor

178″ Stack with Hydraulic Lift

FARREL CALENDER ROLLS

are made in all sizes up to and including

264″ on Face

Known all over the world.

FARREL FOUNDRY & MACHINE CO.

ANSONIA, CONN.

Established 1848 Branch Plant, BUFFALO, N. Y.

Fred J. Cathcart, office manager of the International Paper Co., Niagara Falls, New York, plant, died suddenly September 9 as he was about to leave his home for the office.

The International Paper Co. is making preparations at its plant in South Glens Falls to produce a medicated tissue to be used in hospitals and retailed in drug stores. Production is expected to start this month.

Charlton Leaves Pyritis Mill

E. A. Charlton, for six years manager of the DeGrasse mill of the International Paper Co., has retired from that position to accept one as president of the Newfoundland Pulp and Paper Co., at Corner Brook, Newfoundland, properties recently acquired by that company.

Other members of the DeGrasse organization now in Corner Brook or soon to leave for there are S. E. Kay, A. S. Tourangeau, C. Geisendoerfer, Charles Stewart, and Charles McCarthy. A. W. Simpson is at present acting manager of the DeGrasse mill.

William Pitt Adderly, an oiler in the Deferiet Mill of St. Regis Paper Co., was instantly killed by falling against a machine which he was oiling.

John A. Remington, for the past five years manager of the Oswegatchie Paper Co., mill at Natural Dam has left the employ of that company. Mr. Remington went to the Oswegatchie fill from Norwood where he occupied a similar position. His father was the late Charles H. Remington, one of the pioneers of the paper business in this section.

Carlton Rice, an employee of the Champion Paper mill, lost his right arm as the result of having it caught in a rewinder.

Taggart Plant to Open First of January

The plant of the Taggart-Oswego Paper and Bag Co., at Oswego, will be in operation January 1, it is stated by officers of the company. The machinery is being built and shipments will begin in a few weeks. Kraft paper will be shipped to Oswego for the manufacture of bags until the paper making machines are installed.

Plans of the company provide for the use of the bag making unit at the earliest possible moment consistent with non-interference with manufacture of cement bags at the Watertown and Herrings plants. It is planned to take advantage of the usual winter slump in the manufacture of this type of bags through a slowing up of construction work and ship machines from the two present plants to the one at Oswego, though most of the machinery equipment will be new.

The first decision handed down by United States Judge Frederick H. Bryant, of Malone, was one which denied a motion to compel Attorney Charles E. Norris, as receiver of the Carthage Sulphite Pulp and Paper Co., to pay $1,312.56 interest on taxes to the United States Mortgage and Trust Co.

The International Paper Co. and the International Hydro-Electric Power Corp. has applied for a writ to review the assessment made by the assessors of the town of Brownville against Mills B and C of the International. The assessment against Mill B is $236,000 and that against Mill C $230,000. According to the petitioners the value of the first mill is $100,000 and that of the second $180,000.

G. Seymour Knowlton, vice president of the Knowlton Bros., Inc., has been elected chairman of the board of directors of the Jefferson County National Bank to succeed the late Stuart D. Lansing. Clarence W. Campbell, of the Dexter Sulphite Pulp and Paper Co., was elected first vice president to succeed Mr. Knowlton.

The Harrisville Paper Co. has filed a formal complaint with the Interstate Commerce Commission alleging that freight

RYERSON

Immediate Shipment from Stock

Bars, Shapes, Structurals, Rails, Plates, Sheets, Rivets, Bolts, Nails, Wire, Chain, Turnbuckles, Shafting, Boiler Tubes, Boiler Fittings, Corrugated Sheets, Concrete Reinforcing, Welding Rods, Babbitt Metal, Tool Steel, Bar Iron, Refined Iron, Floor Plates, Safety Treads, Small Tools, Machine Tools, etc.

Write for the Journal and Stock List—the "key" to Immediate Steel.

JOSEPH T. RYERSON & SON Inc.

Chicago Milwaukee Buffalo St. Louis New York Cincinnati Boston Detroit

STEEL

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SEND FOR YOUR SAMPLE

One test will easily convince you why Albany Grease is the best lubricant for the lubrication of any bearing, whether on shafting or machinery.

Excels all others 4 to 8 times.

Just send us a post card and ask for free sample.

There is only one Genuine Albany Grease. Look for the trade mark on the can or barrel.

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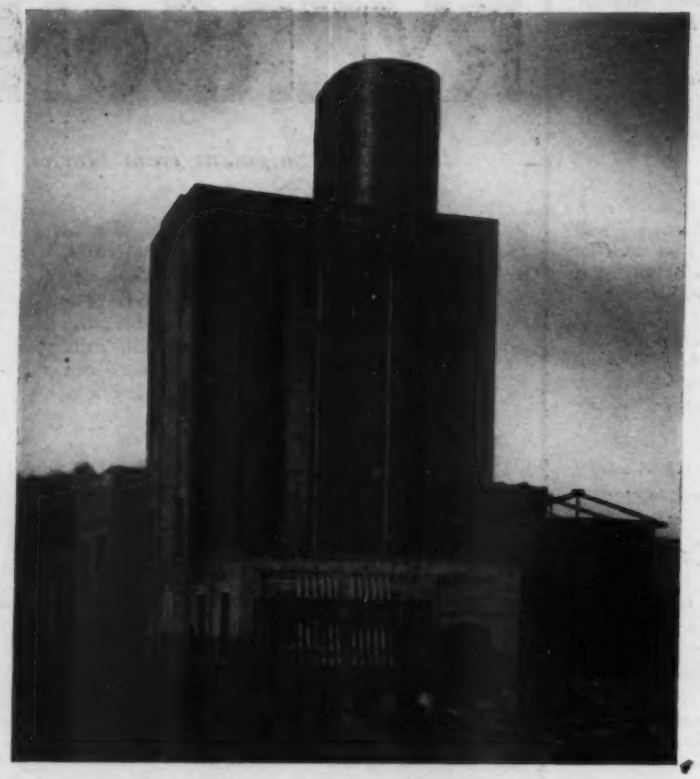
ADAM COOK'S SONS, Inc. 6 Varick St., New York.



STEARNS ACID TOWERS

The three acid towers shown were furnished by us for the Donnacona Paper Company. The towers are 60 feet high and 6 feet in diameter. The storage tank at the right has a capacity of sixty thousand gallons.

Wood Tanks of All Kinds

The A. T. STEARNS LUMBER CO.
NEPONSET
BOSTON - - MAS

PERKINS HOLYOKE

GRANITE PRESS ROLLS
Eliminate Sticking

AIR, always present between crystals of granite is compressed when the sheet passes through the nip of the press rolls. The air then expands immediately forcing the sheet away from the roll and prevents running up or sticking.

Perkins Granite Press Rolls reduce breaks at wet presses. They give a drier sheet and a better finish to paper. Rolls last as long as machines. Minimum regrinding costs. No loose heads.

Perkins Granite Press Rolls allow faster machine speed because increased pressure can be carried on the Perkins Roll without danger of sticking.

Perkins construction means practically no deflecting. *Granite Rolls positively increase production.*

B. F. Perkins & Son, Inc., Holyoke, Mass.

TRADE MARK REG. U.S. PAT. OFF.

COTTON ROLLS - PAPER ROLLS - EMBOSSING ROLLS - CHILLED IRON ROLLS - GRANITE PRESS ROLLS - WEB SUPERCALENDERS - GLASSINE SUPERCALENDERS - FRICTION CALENDERS EMBOSSING CALENDERS - SHEET CALENDERS - PLATERS - MULLEN PAPER TESTERS TENSILE TESTERS - VENTILATING FANS - RAG CUTTERS - STOCK CUTTERS - PAPER DAMPENERS BLEACH EJECTORS

rates on paper from Harrisville to certain points in the middle west are too high.

NEW ENGLAND NEWS

News of the Month

In a month of many interesting developments it is difficult to select the outstanding piece of news; the five million dollar expansion of the Frasers at Madawaska, the rejection of the carton packing by New England merchants, Sidney Willson's reiteration of the desirability of the 25x40 basis plan for paper sales which may presage its more general adoption, the appointment of E. H. Naylor as receiver for the Berkshire Hills Paper Co., these and other things have attracted considerable notice from different sections of the trade.

Perhaps in the closest weighing of values, however, first place should be given to the reported closing of the International Paper Co.'s Wilder, Vermont, mill. A small event in itself, it is symtomatic of conditions among many of the New England paper mills, those mills which might be called "marginal producers" by an economist.

For mingled reasons of pride, tradition, solicitude for employees and other reasons not strictly sound in a business sense, many small mills that have outlived their period of usefulness are kept going. Where these are owned by a family or a small group of stockholders the attempt may be made to keep them in operation when colder but more logical reasoning would have seen the unwisdom of so doing.

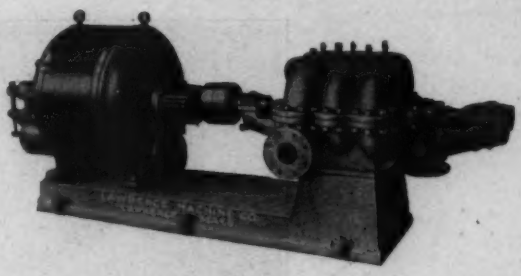
The International Paper Co., however, is in an entirely different category. It must and does intend to earn dividends for its stockholders. At one time its chief centers of production were in New England, and its production here is still a very important factor, but as experience proves that newsprint can be made more economically nearer the source of raw material—in Canada—the New England mills are to be shifted to grades other than newsprint and if that is impracticable they will be closed. Their Franklin, N. H., mill has been idle for some time, it is said that Turners Falls, Mass., mill may not be operated for many more years and others may follow.

Wilder Mill was one of their oldest and had an interesting history. Its output was a bagatelle compared to Livermore Falls, yet it was a valuable property for many years. The Company indicated to the town of Hartford, Vt., of which Wilder is one section, that this was coming. A year ago an effort was made to induce the Company to change its mind but apparently without success. What is significant, however, is the fact that the Company owns valuable water power rights, and it is rumored that these are to be developed for the benefit of the New England Power Association. It is worth noting that the offers for the purchase of the Amoskeag Mfg. Co., the largest cotton textile plant in the world, are said to come from the New England Power Association, though whether this would include the Amoskeag Paper Mill was not stated. At any rate, when New England manufacturers cannot yield a return except in boom times their hydro-electric power becomes their greatest asset.

The Wilder mill which has closed, probably for good, as much of its machinery has been moved elsewhere, employed from 250 to 300 men when at full time though for months it has been running on part time.

It is understood that E. H. Naylor has been confirmed as receiver for the Berkshire Hills Paper Co., of Adams, Mass. Mr. Naylor is well known as secretary of the Writing Paper Manufacturers Association.

The development at Madawaska, Me., by the Fraser Paper Co., is a major piece of news. The Frasers plan to increase the present output of sulphite bonds, waxing papers and other sulphite specialties from 24,000 tons to 66,000 tons annually, an increase of 250 per cent. The pulp mill at Edmunston, N. B., across the river will be enlarged and probably



LAWRENCE multi-stage high pressure pumps for boiler feed and water supply service, to meet all conditions where reliability and economical operation are an essential factor.

Our many years of experience designing and building pumps backed up by unlimited capital and modern facilities places us in the front rank as pump builders.

Some of our competitors try to imitate, but none can equal.

Write the Lawrence Machine Co., for complete details and prices. Free engineering service.

LAWRENCE MACHINE & PUMP CO.
LAWRENCE, MASS.

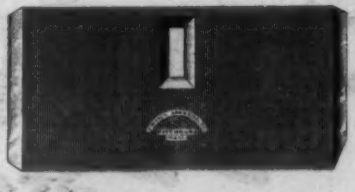
Manufacturer of "Lawrence" Pump, Centrifugal Pumping Machinery, Vertical Steam Engines, Contractors for Special Machinery

SIMONDS

Chipper and Barker KNIVES

Service at a minimum cost is what you get when your machines are equipped with Simonds Chipper or Barker Knives. They are made of tough steel that holds an edge and resists shocks.

Write for catalog and prices.



Simonds Saw and Steel Co.

Established 1832
Fitchburg, Mass.

Boston Chicago

APPLETON WIRES

Fourdrinier Wires
Cylinder Wires
Save-All Wires
Washer Wires

Dandy Rolls and Cylinder Moulds repaired and recovered.

Over fifty years of experience in manufacturing wires for American Paper Makers, and the ever increasing use of APPLETON WIRES testify to their quality.

Appleton Wires
are good wires

APPLETON WIRE WORKS INC., APPLETON, WIS.

the famous pulp conduit over the international boundary will be supplemented. This system which was the talk of the trade when announced has proved eminently successful in operation.

American Writing News

With the American Writing Paper Co. in a stronger financial and competitive position than it has ever before held in the fine paper industry, any decisive action taken by it has a bearing on the entire industry. Its recent decision to sell no less than two original mill packages of any grade of paper was hailed by the merchants as co-operation in their effort to discourage direct selling. Now Sidney L. Willson, president of the A. W. P. Co., comes out strongly again for the 25x40 basis for paper sales.

"Paper," says Mr. Willson, "is a basic and generic term and in its manufacture it is natural to assume that a standard or basic factor could and should be established that would apply to all grades, but this is not the case. When paper was first made there developed an unwritten law that the size most commonly used when the grade was established should be considered the basic size for that grade, and without regard to the relation of that basic size to those used in the manufacture of another similar or dissimilar grade. Wrapping paper and newsprint use 25x36, book paper 25x38, writings, bonds and ledgers 17x22 with blotting, tissue, bristols, covers and many other grades having each a different basic size used in the manufacturing.

"A plan was suggested," Mr. Willson goes on to say "to use 25x40 or 1000 square inches for the base manufacturing and 1000 sheets of that size to determine the weight of a given thickness of paper. By this method the same number of thicknesses would be identical in weight whether applied to newsprint, book, cover writing, or anything else. Under the suggested simplification 1000 sheets of 40-pound wrapping would weigh 40 pounds, 1000 sheets of 40-pound book would weigh 40 pounds and so on. Under the present system 1000 sheets of 40-pound wrapping in present basic size weighs 96.44 pounds; 1000 sheets of 40-pound weighs 84.20 pounds; 1000 sheets of 40-pound writing weighs 213.90 pounds.

"No good argument has ever been given against the soundness of the proposed plan, but many an excuse has been made, principally. It's too radical a change and too costly to put into effect. That line of reasoning has caused many an institution to fail or fall behind."

Mr. Willson also strongly urges the general adoption of standardized sizes by the direct mail advertiser, believing that character and distinctiveness to this work can be obtained with far more success by the proper arrangement of words, colors and art. Mr. Willson admits, however, that this standardization in the case of paper entails promotional work and a campaign of education among buyers of paper.

The movement of pulpwood from the Maritime provinces through Portland, Me., reached record proportions in the season just closing. The Hollingsworth & Whitney Co., International Paper Co., Oxford Paper Co. and S. D. Warren Co. were the principal consignees of this wood.

Herbert I. Wallace

Herbert I. Wallace, until five years ago managing director of the Fitchburg Paper Co., died this past month at his home in Fitchburg. He had been in failing health for some years. For many years he was considered the leading authority on book paper manufacture. He developed greatly the property founded by his father, Rodney Wallace, in 1853.

Herbert I. Wallace joined the firm after his graduation from Harvard. He was connected with several industries and utilities and was until very recently vice president of the Fitchburg and Leominster Street Railway.

Turns Down Carton

The New England Paper Merchants' Association at their first meeting of the 1927-1928 season at the Harvard Club of Boston, considered the advisability of recommending carton

Dilts

MORE HISTORY!

"Simple facts not foolish statements."

Here is a mill formerly making 10 tons of wrapping and specialties, now with capacity for 25 tons No. 1 Kraft. Read this report:

"These beaters now making No. 1 Kraft consist of the new 62 x 48 in. Dilts New Type beater, the three old 62 x 48 in. beaters rebuilt by Dilts to their New Type, and the new Dilts continuous beater handling the pulp. Two beaters are on each 125 HP motor, the power indicator showing about 50 HP per beater.

"On the old beaters before rebuilding much difficulty was experienced in making test kraft, the sheet running about 80 per cent test, but on the present beaters the Mullen shows 100 per cent test or 'a point to the pound,' and the character of the sheet is very satisfactory throughout.

"The mill is absolutely changed from a wrapping grade plant to a No. 1 Kraft grade by this Dilts beater equipment."

Does this interest you? Are you making cheap papers instead of high grades because your beaters are not equal to the requirements? Why not let us improve your prospects?

"Your paper is made in your beaters."

Dilts

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE - 15 PARK ROW - NEW YORK CITY

This is a typical installation of Norwood Filters. Norwood three-unit installations make continuous operation possible.

Call In

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To Help You Save Money

NORWOOD maintains an efficient engineering service to help you in the solution of your paper mill problems. The subject of maximum production, long life and economical operation of your filters and paper mill machinery is of such importance that you will find it well worth your while to take advantage of Norwood's co-operation. If you have a problem dealing with filters, calenders, platers or other paper mill equipment included in the Norwood line, we suggest that you call in Norwood to help you save money on this equipment. Norwood service and Norwood dependable equipment will save you money in the long run.

It will pay you to write us for full specifications, illustrations and prices on any paper mill equipment in which you are interested.

NORWOOD ENGINEERING COMPANY

Florence, Mass.

FILTERS SUPER-CALENDERS GLASSINE-CALENDERS PLATERS DUSTERS BRUSHING ENGINES

FOR STEAM, OIL OR WATER SERVICE

LUNKENHEIMER "CLIP" GATE VALVES

100 lb. W. S. P.

The steel clip surrounding the body rigidly secures the bonnet, lends strength to the body, and facilitates quick disassembling for inspection and cleaning.

The disc is double seated, and is tapered to a narrow point, making the valve particularly adaptable for handling heavily impregnated fluids.

"Clip" Valves are also procurable with lever for Quick Operating purposes, and in the All-Iron Pattern for handling solutions which attack bronze but not iron.

Lunkenheimer Distributors, located in all industrial centers, carry complete stocks and will fill your requirements promptly.

The complete line of Lunkenheimer "Clip" Valves are illustrated and described in Booklet F-505. A copy will be sent upon request without obligation.

THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U.S.A.
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5-22-67

packing to the mills and, with perhaps two exceptions, turned it down. The fear seems ingrained that the carton will stimulate direct selling, will reduce case business, and by making the carton the ultimate standard unit of sales, will force a lowering of the price to the case basis. The fact that more paper can be stored in the same lofts, that it obviates mill wrapping of less than case orders, and is easier to handle appealed mainly to those specializing in bristol boards and cardboard of all types. The Falulah Paper Co. is putting up cartons to the utmost satisfaction of W. J. McClelland, head of the cardboard department of Carter Rice & Co.

New China Clay Loading Apparatus

Early in November, the English China Clay Sales Corp. will invite as its guests a group of New England paper manufacturers to witness the first operations of what is undoubtedly the most modern type of china clay unloading machinery in the world. It is being made for the Mystic Terminal Co., a subsidiary of the Boston & Maine R. R., by the Holly Mfg. Co. and will be installed at the Mystic docks on Boston harbor. It will considerably more than halve the time required for unloading a vessel and will probably reduce the labor cost to a small fraction of the expense when vessels are unloaded by wheelbarrows.

The problem of handling china clay has always been fraught with unusual difficulties, chiefly because the clay does not "trim" in a vessel's hold. At Fowey, England, the leading clay port of the world, special devices are employed that are, however, not practicable here. The clay there is dumped directly into the vessels from the cars but the freight cars used are open top, covered with special tarpaulins. Moreover, at Boston the problem is one of loading. The new equipment will take the clay direct from the vessels' holds, carry it to the box cars and deposit it in any part of the car desired. To the unceasing efforts of Arthur Holbrook, of the English China Clay Sales Corp., development can in large part be credited.

Traffic News

The outstanding piece of traffic news concerns the proposed revisions of the Southern Classification on paper, incidentally on many other articles as well. It is proposed to change many paper classifications in an upwardly direction. For instance, wrapping paper would go from 5th and A to 3rd and 6th, printing paper from 4th and 6th to 3rd and 6th, board from 5th and A to 4th and A, newsprint from 5th and A to 4th and A. New England ships a tremendous volume of paper south and as the southern classification governs, the matter is of vital interest. The New England Paper & Pulp Traffic Association has requested the Southern Classification Committee to combine all paper items on the docket to facilitate the presentation of its case.

Though it would appear that the carload rates in several cases as indicated above were not to advanced, the facts are not as they appear on the surface. In 1916, paper in the south was granted what have been since known as untreated class rates which are in effect the old commodity rates. They are listed in the classification books as class rates but when found in the rate book they are seen to be the old commodities. This arrangement resulted from a strong protest against the class rates proposed in 1915. But these untreated rates are known to be eliminated and paper will take the full class bases.

In some cases, carload quantities and in all cases l.c.l. quantities will be hoisted an additional class. Moreover, in official classification territory paper moving at sixth class bears the ratio of 100 to 33⅓ and eventually will be at 100 to 28 per cent as compared to 1st class, but in the south the basis is proposed as 100 to 40 per cent so that paper rates will take at least 40 per cent of 1st class and on through shipments from New England must pay the higher basis for the entire haul. Many glaring inconsistencies are pointed out by traffic interests. The rate on printing paper from Rumford, Me., to Memphis, Tenn., is 90c, on wrapping paper 48c.

Another traffic development of the month was the promulgation of the 1.50c per hundred rate on waste paper in mini-

EVERY MINUTE COUNTS!

MORE paper passes over a Fourdrinier Wire in a minute today than could be made in an hour a few years ago.

The interest and depreciation on many modern Fourdrinier machines exceed the entire payroll of earlier mills.

Idle machines or defective paper means loss of production and profits! This is the reason why many papermakers select Tyler Fourdrinier Wires for their machines. They know that these dependable wires will keep their machines at maximum efficiency and assure the greatest possible return on the investment.

Tyler Fourdrinier Wires run straight and true, assuring uniform dewatering and deposition of pulp, and maximum output of high quality, uniform paper.

Supplied in all widths up to and including 250 inches

The W. S. TYLER COMPANY, *Cleveland, O.*

Backing Wire Tyler Fourdrinier Wire Corduroy Cloth

TYLER WIRES

REED SPAFFORD

Pulp Screen

WHAT DOES YOUR **POWER** COST YOU

UNHEARD OF LOW **POWER** PER TON

HALF **POWER** SAVED

VERY LARGE CAPACITY

VERY LIMITED FLOOR SPACE

OFFERED ONLY AFTER MANY MONTHS OF CAREFUL DEVELOPMENT

Improved Paper Machinery Company

Nashua, N. H., U. S. A.

mum carloads of 20,000 pounds and 9.50c for a 60,000 pound minimum from Boston to Fitchburg, Wachusett, West Groton, North Leominster and other points. It is said to be driving much of this traffic to trucks.

A hearing has been requested in Boston before the I. C. C. on the salt cake rate from Boston and New York to Howland, Me., and on the coal rate advance from Bangor to Howland, home of the Advance Bag & Paper Co.

Herman I. Koegel, of Holyoke, president of the Charles Koegel's Sons, died at his home on September 30.

OHIO NEWS

D. D. Thirkield, personnel director of the Sorg-Oglesby-Smith Paper Co., was one of the Middletown safety promoters attending the National Safety Congress in Chicago, the week of September 26. Mr. Thirkield was on the Congress program. C. R. Hook, vice president of the American Rolling Mill Co., Dr. H. S. Murat, R. G. Adair, J. Margerum, Hugh Wright and Chester Hagen, Armco representatives, also attended the congress.

Objection to Freight Rates

Middletown paper manufacturers, along with those of Hamilton, Dayton, other points in Ohio, Illinois and Virginia, are taking a firm stand in their protest against the increase in freight rates to points south. The proposed change was recently given a hearing in Cincinnati before the Southern Classification Committee, whose decision is yet pending.

All of the manufacturers voiced their protest against such a change, which in many cases will mean an increase of from 40 to 100 per cent on shipments. C. J. Nicols of the Sorg-Oglesby-Smith Paper Co., and president of the Miami Valley Paper Shippers Association, represented these firms in his opposition to the proposed sweeping changes in classification. In his remarks he voiced the opinion of these 18 corporations in the Association who produce 300,000 tons of paper annually.

Suit has been filed in common pleas court by the Bulkley-Dunton Co., of Middletown, against the Freid Paper Co., of Hamilton, in which judgment is asked against the Hamilton company for $2,180.96 and interest from September 10, 1927. The Middletown company alleges that the money is due for goods said to have been stolen from its warehouse in Middletown and wrongfully received by the defendant.

Benjamin M. Bishop, formerly superintendent of Mill No. 2, Gardner-Harvey Paper Co., and before that superintendent of the Coker Paper Co., Hartsville, N. C., has gone with the Terre Haute Paper Co., Terre Haute, Ind., where he will be superintendent.

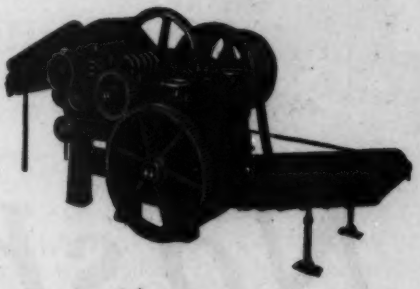
Executives and foremen of the Sorg-Oglesby-Smith Paper Co. have under advisement the organization of a Mutual Benefit Association, whereby the employees would be provided with social and athletic activities and at the same time given non-occupational sickness and accidental benefit. The idea was proposed several weeks ago, and though no vote has been taken upon it, their desire to join such an organization has been expressed.

H. H. Faries, head of the Order Dept. of Sorg-Oglesby-Smith Paper Co., and in their employ for 27 years, has resigned and gone to California to live. Mr. Faries designed the majority of the office forms in use at the above company and the present filing system is a product of his work.

Management Week is to be observed by paper officials in the Miami Valley, and a special program is being planned to show the vital part in the maintenance of prosperity of the nation that management plays. Z. W. Ranck, president of the Crystal Tissue Paper Co., E. T. Gardner, president of

PERKINS HOLYOKE

Rag and Stock Cutter



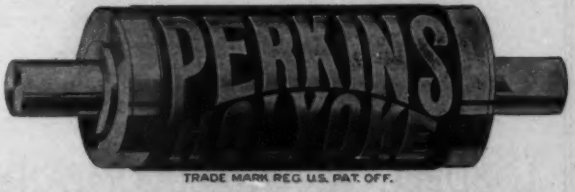
Excess of 100 lbs. per minute with 7½ h. p.

Cutting costs are governed by the output of power consumed in ratio with machine capacity.

The Perkins Rag and Stock Cutter carries the material from the feed apron to the slitters. As it is cut into strips it is conveyed by an intermediate apron lengthwise to a spiral knife which cuts it into uniform blocks of size desired. Delivery apron carries the pieces wherever you want them delivered.

Perkins Rag and Stock Cutter is dustless in operation, makes no waste of stock and gives you clean shear-cut. The stability of Perkins machines is indicated by the fact that cutters made as long as thirty years ago—without, of course, many of the new Perkins improvements—are still doing satisfactory service in New England plants.

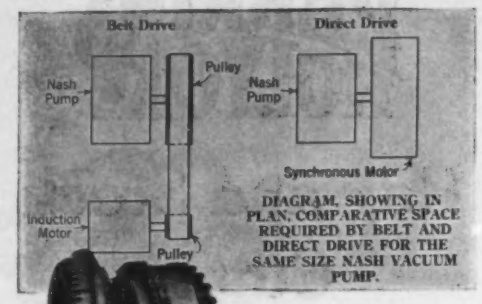
B. F. Perkins & Son, Inc., Holyoke, Mass.



TRADE MARK REG. U.S. PAT. OFF.

COTTON ROLLS - PAPER ROLLS - EMBOSSING ROLLS - CHILLED IRON ROLLS - GRANITE PRESS ROLLS - WEB SUPERCALENDERS - GLASSINE SUPERCALENDERS - FRICTION CALENDERS EMBOSSING CALENDERS - SHEET CALENDERS - PLATERS - MULLEN PAPER TESTERS TENSILE TESTERS - VENTILATING FANS - RAG CUTTERS - STOCK CUTTERS - PAPER DAMPENERS BLEACH EJECTORS

Direct synchronous motor drive is more compact



DIAGRAM, SHOWING IN PLAN, COMPARATIVE SPACE REQUIRED BY BELT AND DIRECT DRIVE FOR THE SAME SIZE NASH VACUUM PUMP.

Nash Hytor Vacuum Pump, direct connected to slow speed synchronous motor.

Nash Hytor Vacuum Pumps *can be direct connected* to slow speed synchronous motors. In fact, the rotor of the motor is mounted on the same shaft that carries the Nash pump impeller.

As the diagram shows, this is a most compact arrangement.

NASH ENGINEERING COMPANY

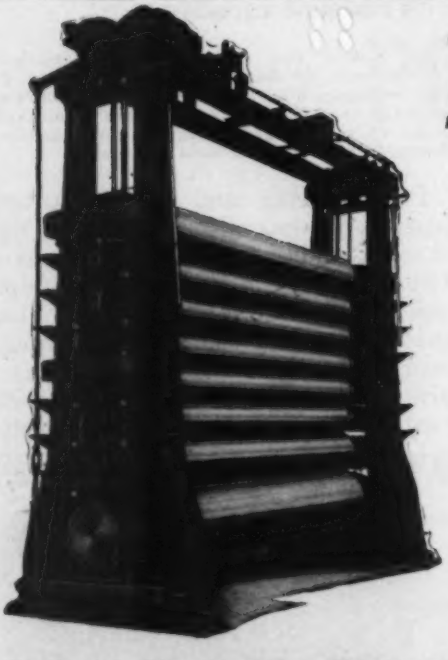
151 Wilson Road — So. Norwalk, Conn.

New England Representative
Mr. G. H. Gleason, Nottingham Bldg., Copley Square, Boston, Mass.

Western Representative
Mr. T. H. Savery, Jr., 80 E. Jackson Boulevard, Chicago, Ill.

Nash Hytor

VACUUM PUMPS AND COMPRESSORS



LOBDELL

CHILLED IRON ROLLS AND MACHINE CALENDER STACKS

Specified on your new machines or for the new rolls for your old stack insure rolls of maximum hardness and perfect finish.

Calender Stacks are equipped with Electric Motor, Hydraulic, or Ratchet Lift all operated from the floor.

Improved Oiling Systems can be furnished either completely circulating with oil filter and sight feed or closed end ring oiling boxes or a combination of both.

Ask for your copy of our treatise on the Care and Upkeep of Paper Mill Rolls.

LOBDELL CAR WHEEL COMPANY
Established 1836
WILMINGTON, DELAWARE

the Gardner-Harvey Paper Co., C. E. Aull, secretary-treasurer of the Sorg Paper Co., and J. J. Hallowell, secretary-treasurer of the Wrenn Paper Co., have been chosen along with Bennett Chapple of the American Rolling Mill Co., to plan this fitting observance.

WISCONSIN NEWS

H. G. Noyes, Appleton, who originated courses in paper and pulp instruction in Wisconsin cities, attended the annual meeting of members of the State Department of Vocational Education and directors of Wisconsin vocational schools recently in Madison. He consulted with the directors on the courses he will supervise in a number of cities this year.

Mr. and Mrs. J. A. Kimberly have returned to their home in Redlands, Calif., after a visit with their children in Neenah. Mr. Kimberly is the founder and still president of the Kimberly-Clark Co. He celebrated his eighty-ninth birthday anniversary in Neenah and also the eightieth anniversary of his coming to this city.

Frank J. Schneller, vice president and sales manager of the Gilbert Paper Co., Menasha, together with his son, Frank, Jr., won the slow fire rifle match in the international Father and Son Rifle Shoot at Zurich, Switzerland. Mr. Schneller, who is Wisconsin Department Commander of the American Legion, was in Europe attending the national convention of the Legion.

The University of Wisconsin in co-operation with the United States Forest Products Laboratory at Madison will give a course in reforestation. The Wisconsin Conservation Commission is also co-operating. Several scientists of the laboratory will be on the faculty. The first will be a short course—Oct. 29 to Nov. 15—for logging superintendents, camp foremen, forest rangers, and fire wardens.

Under the weight of large amounts of storage, a floor and parts of a wall collapsed at the warehouses of the M. Burstein Co., Neenah, dealers in paper and rag stock.

New Carton Company

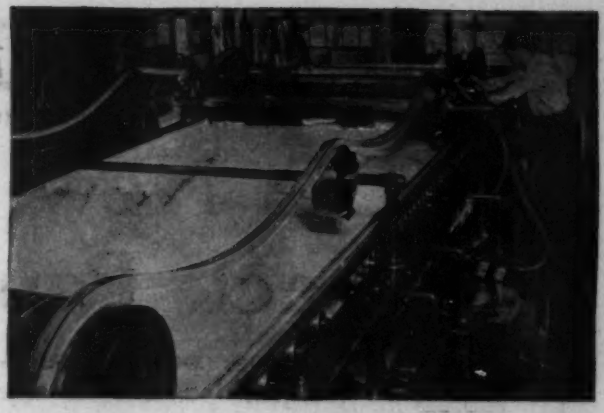
A new carton company has been organized by Neenah and Menasha business men and has been incorporated under the name of the Wisconsin Carton Co. The authorized capital is $100,000.

James T. Mader, Adam Schwertzbauer and Alfred Danke are the incorporators. The company has taken over the plant of the defunct Elm Paper Box Co., on S. Commercial St., Neenah. Mr. Maeder was formerly superintendent of the Wausau plant of the Menasha Printing and Carton Co. From thirty to fifty employees will be engaged.

The estate of the late William Buchanan, one of the founders of the Appleton Wire Works, Appleton, is now being divided among the heirs. The estate approximated $300,000. A part of the inheritance went to G. E. Buchanan, present general manager of the Appleton Wire Works.

The scheduled receivership sale of the Peshtigo Paper Co., which had been set for September, has again been postponed, this time until October 24. Meanwhile the company has been making excellent progress under the management of P. M. Allen, the new receiver. During the month of August several records were broken. The company exceeded its best previous production record, sales reached their highest point in the company's history, and an intensive safety campaign resulted in a perfect safety record for the month.

Deepening of the channel of the Fox River by the government this year has resulted in a shortening of the rail journey of pulp wood for the Fox River Valley paper mills.



Longer life to your felts!

MANY a good felt has had its length of service unnecessarily shortened by improper washing. The use of alkalies or soda ash tends to weaken or otherwise injure the fibres.

Longer felt life is invariably the rule in paper mills where washing is done the Oakite way. For Oakite cleans *safely*, removes every trace of dirt, sizing and other foreign matter without harming fibres in any way, rinses easily and completely, and leaves felts as soft and as absorbent as new.

Oakite washing will help you keep your felt expenditure at a minimum. Write us for details, or ask to have one of our Service Men call. No obligation.

Oakite is manufactured only by

OAKITE PRODUCTS, INC., 16A Thames St., NEW YORK, N. Y.
(Formerly OAKLEY CHEMICAL CO.)

Oakite Service Men, cleaning specialists, are located at

Albany, N. Y., Allentown, Pa., Altoona, Pa., *Atlanta, Baltimore, *Birmingham, Ala., *Boston, Bridgeport, *Brooklyn, Buffalo, *Camden, N. J., Charlotte, N. C., Chattanooga, Tenn., *Chicago, *Cincinnati, *Cleveland, *Columbus, O., *Dallas, *Davenport, *Dayton, O., Decatur, Ill., *Denver, *Des Moines, *Detroit, Erie, Pa., Flint, Mich., Fresno, Cal., *Grand Rapids, Mich., Harrisburg, Pa., Hartford, Houston, Tex., *Indianapolis, *Jacksonville, Fla., *Kansas City, *Los Angeles, Louisville, Ky., *Memphis, Tenn., *Milwaukee, *Minneapolis, *Moline, Ill., *Montreal, Newark, N. J., Newburg, N. Y., New Haven, *New York, *Oakland, Cal., *Omaha, Neb., *Philadelphia, *Pittsburgh, Portland, Me., *Portland, Ore., Providence, Reading, Pa., *Rochester, N. Y., Rockford, Ill., *Rock Island, *San Francisco, *Seattle, St. Louis, South Bend, Ind., Syracuse, N. Y., *Toledo, *Toronto, Trenton, *Tulsa, Okla., Utica, N. Y., *Vancouver, B. C., Williamsport, Pa., Worcester, Mass.

*Stocks of Oakite materials are carried in these cities.

OAKITE

TRADE MARK REG. U.S. PAT. OFF.

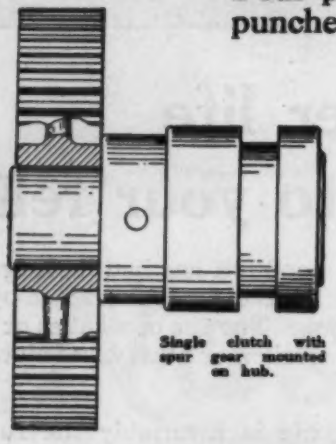
Industrial Cleaning Materials and Methods

THE JOHNSON FRICTION CLUTCH

as used on

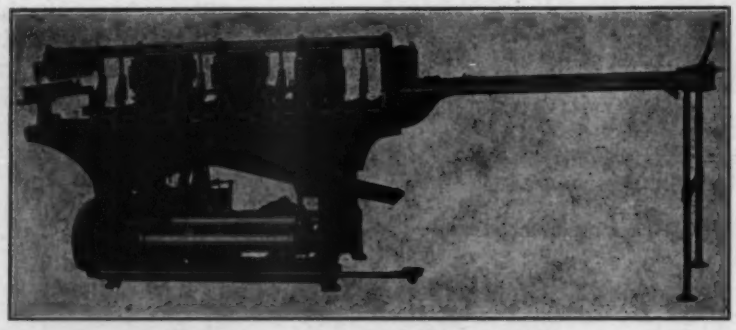
The New Eight-Hole Rosback Paper Perforator

Four perforating heads and the heading punches all in operation shown below.



Single clutch with spur gear mounted on hub.

Installed with spur gear mounted on the clutch hub, the No. 5 JOHNSON Single Clutch is used on the main drive shaft. The clutch operates 7,680 times per day, running steadily day in and day out, and it always stands up. THAT'S SERVICE!



Courtesy F. P. Rosback Co., Benton Harbor, Mich.

Johnson Clutches Are America's Favorite on Paper Machines

The illustration above shows the style of perforating head which can be used in connection with the punch heads. JOHNSON Clutches are admirably adapted for any light-powered paper machine built. Thousands of plants all over the country find they can depend on JOHNSONS for perfect clutch service. Equip with JOHNSONS.

Write for Catalog "P. I."

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

Extra Years of Service

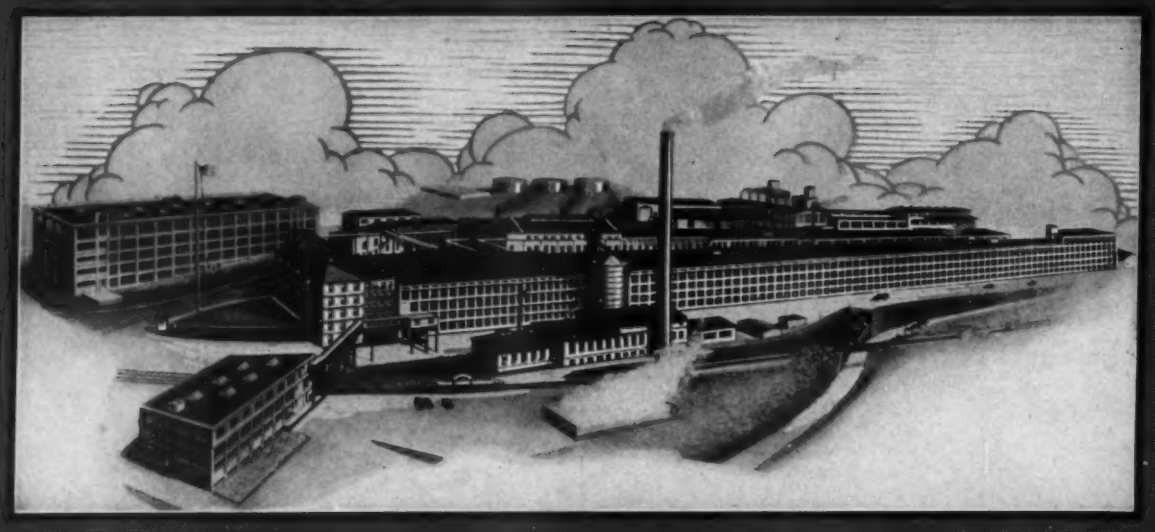
MORSE SILENT CHAIN DRIVES always have been noted for their dependability and long life. Many, installed 15 and 20 years ago, are still operating satisfactorily.

The Morse Chain Company now announce refinements in the design of chain—the new design is known as No. 55 type.

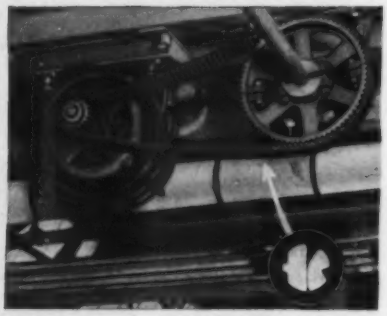
This new design provides a better balanced joint, which has materially reduced the wear, and this means added chain life.

Now, with the new and improved Morse Rocker Joint, extra years of service are added to Morse Chains. Changes in the contour of the rocker pin and an increase in cross section of seat pin have made a joint, more rugged and sturdy, 8% heavier, and with an increase of 50% in breaking strength.

for every POWER TRANSMISSION need



Morse Silent Chain enclosed in dirt-proof case, driving from motor to pug mill.



A 20 H.P. Line-shaft Drive by Morse Silent Chain. Driver, 1160 r.p.m.; Driven, 250 r.p.m., 32-inch centers.

A 50 H. P. Morse Silent Chain Speed Reducer with Morse Flexible Coupling, enclosed in cast iron housing. Speed reduction—725 r.p.m. to 54 r.p.m.

NOW, coupled with this new [illegible] are added production facilities for serving industry's power transmission needs. A complete new building has recently been put into use. Modern automatic electric furnaces with recording pyrometers have been installed, making uniform heat treating a certainty.

Whatever your power transmission needs may be, Morse Transmission Engineers are always ready to give you advice in applying drives to your requirements. Just address the nearest office for complete data.

MORSE CHAIN CO., ITHACA, N. Y., U. S. A.

Atlanta, Ga.	Earl F. Scott & Co. 702 Candler Bldg.,
Baltimore, Md.	1002 Lexington Bldg.
Birmingham, Ala.	Moore-Handley Hdwe. Co.
Boston, Mass.	141 Milk St.
Buffalo, N. Y.	Ellicott Square Bldg.
Charlotte, N. C.	404 Commercial Bank Bldg.
Chicago, Ill.	112 W. Adams St.
Cleveland, Ohio	421 Engineers Bldg.
Denver, Colo.	211 Ideal Bldg.
Detroit, Mich.	7601 Central Ave.
Louisville, Ky.	E. D. Morton Co. 516 W. Main St.
Minneapolis, Minn.	413 Third St. Strong-Scott Mfg. Co.
New Orleans, La.,	A. M. Lockett & Co., Ltd. Queen & Crescent Building, 334 Camp St.
New York, N. Y.	50 Church St.
Omaha, Neb.	923 W. O. W. Bldg. D. H. Braymer Equipt. Co.
Philadelphia, Pa.	803 Peoples Bank Bldg.
Pittsburgh, Pa.	Westinghouse Bldg.
San Francisco, Calif.	Monadnock Bldg.
St. Louis, Mo.,	2137 Railway Exchange Bldg.
Toronto, 2, Ont., Can.	50 Front St., E. Strong-Scott Mfg. Co.
Winnipeg, Man., Can.	Dufferin St. Strong-Scott Mfg. Co.

1981 R

MORSE SILENT CHAIN DRIVES

55

Great Lakes boats are now plying up the river as far as De Pere where the wood is reloaded upon freight cars. Most of the pulpwood is destined for Appleton mills.

A. J. Hamlin, former Canadian sales representative of the Kotex Co., of Neenah, has been sent to England to take charge of the company's sales in that country.

The Appleton Coated Paper Co., Appleton, and the Kimberly-Clark Co., of Neenah, have entered exhibits at the International Direct Mail Advertising Association exposition, which will take place this month in Chicago.

A fire that kept the fire department at work all night caused some damage to the Menasha Paper Mills when large storages of baled straw became ignited either from sparks from a locomotive or through spontaneous combustion recently. Fifteen streams of water were used to keep the blaze from spreading. In appreciation for the services of the firemen, the company presented them with a check for $100 for their firemen's pension fund.

Paper Course Instruction Resumed

Courses in paper and pulp instruction will be resumed in the Vocational School at Appleton this month. The Appleton school originated the movement in Wisconsin. This year an itinerant instructor will be used by schools of a number of paper mill cities in Wisconsin, including Green Bay, Kaukauna, Neenah and Menasha. Arthur W. Bouffard, formerly of Rumford, Maine, will be the instructor.

H. G. Noyes, last year's instructor, has taken a position with the State Department of Vocational Education, as a co-ordinator in paper and pulp manufacture instruction.

The old office of the Atlas Mill, now the property of the Kimberly-Clark Co., at the foot of Jackman St., Appleton, Wis., has been demolished by crews of the city street department to make way for a new street and pavement. The property was deeded by the paper company to the city.

An addition to the finishing room of the Lake Superior Paper Co., of Ashland, Wis., is being built. The additional space will be used for machinery and for storage, it is announced.

The Riverside Fibre and Paper Co., of Appleton, Wis., is building a $20,000 addition to its plant. The boiler room and finishing room will be enlarged. There will be a new three-story unit of 66 by 78 feet. C. R. Meyer and Sons Co., of Oshkosh, has the contract.

Inventions on paper converting apparatus have been patented by Clinton O. Gammell and Austin E. Cofrin, both of Neenah.

Foremen's Training Classes

Pleased with the success of the first Foreman's Safety School, which was held in Appleton, last year, those sponsoring the movement are making plans for another course of study along these lines in Appleton this winter.

A series of seven meetings will be held, some of them sectional for the various industries, and the last a general meeting in the form of a banquet. Certificates will be given to those who attend regularly. The Chamber of Commerce, the Vocational School, and local industries, co-operating with the National Safety Council, are promoting the movement.

The entire paper field in New York City will be intensively covered in the 1927 Red Cross Roll Call, according to the plan of representative leaders who, as volunteer chairmen of specially organized groups, are already formulating a comprehensive Roll Call program. Adam K. Luke of West Virginia Pulp and Paper Co., heads as chairman the paper manufacturers and dealers group, and Theodore E. Casselman of T. E. E. Casselman, heads the paper boxes group.

A Century's Fund Of Engineering Data and Experience

AVAILABLE FOR DESIGNING

WALDRON *Complete* FACTORY LAYOUTS

for Coated Paper and Wall Paper

Back of the designing, fabricating and installing of Waldron Complete Factory Layouts is this wealth of knowledge and experience—possessed by no other organization in the field—to provide absolute assurance of utmost efficiency and economy in layout, operation and maintenance of your machinery. With Waldron, the age of experimentation has long passed. It cannot prove expensive to you.

Coating and Embossing Machines, Surface and Intaglio Printers, Mixing Tanks, Brush Polishers, Gumming Machines, Festooners and Drying Machines, Rerolling Machines.

Inquiries of any nature regarding present or proposed factory layouts will receive our immediate attention. Write us. No obligation.

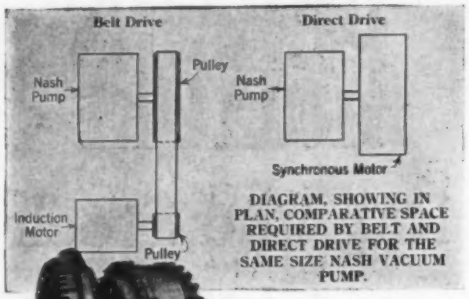
JOHN WALDRON CORPORATION

Main Office and Works - NEW BRUNSWICK, N. J.

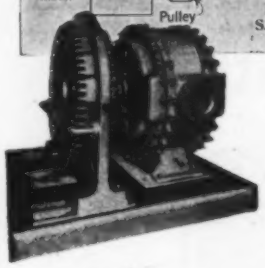
208 West Washington St., CHICAGO

30 East 42nd Street NEW YORK

Direct synchronous motor drive is more compact



DIAGRAM, SHOWING IN PLAN, COMPARATIVE SPACE REQUIRED BY BELT AND DIRECT DRIVE FOR THE SAME SIZE NASH VACUUM PUMP.



Nash Hytor Vacuum Pump, direct connected to slow speed synchronous motor.

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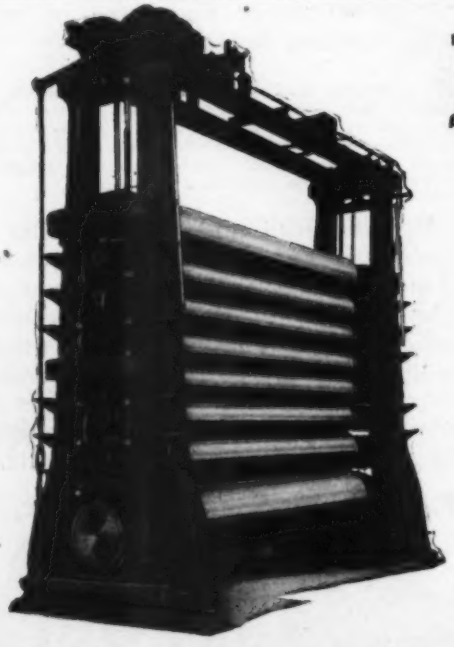
VACUUM PUMPS AND COMPRESSORS



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Improved Oiling Systems can be furnished either completely circulating with oil filter and sight feed or closed end ring oiling boxes or a combination of both.

Ask for your copy of our treatise on the Care and Upkeep of Paper Mill Rolls.

LOBDELL CAR WHEEL COMPANY
Established 1836
WILMINGTON, DELAWARE

the Gardner-Harvey Paper Co., C. E. Aull, secretary-treasurer of the Sorg Paper Co., and J. J. Hallowell, secretary-treasurer of the Wrenn Paper Co., have been chosen along with Bennett Chapple of the American Rolling Mill Co., to plan this fitting observance.

WISCONSIN NEWS

H. G. Noyes, Appleton, who originated courses in paper and pulp instruction in Wisconsin cities, attended the annual meeting of members of the State Department of Vocational Education and directors of Wisconsin vocational schools recently in Madison. He consulted with the directors on the courses he will supervise in a number of cities this year.

Mr. and Mrs. J. A. Kimberly have returned to their home in Redlands, Calif., after a visit with their children in Neenah. Mr. Kimberly is the founder and still president of the Kimberly-Clark Co. He celebrated his eighty-ninth birthday anniversary in Neenah and also the eightieth anniversary of his coming to this city.

Frank J. Schneller, vice president and sales manager of the Gilbert Paper Co., Menasha, together with his son, Frank, Jr., won the slow fire rifle match in the international Father and Son Rifle Shoot at Zurich, Switzerland. Mr. Schneller, who is Wisconsin Department Commander of the American Legion, was in Europe attending the national convention of the Legion.

The University of Wisconsin in co-operation with the United States Forest Products Laboratory at Madison will give a course in reforestation. The Wisconsin Conservation Commission is also co-operating. Several scientists of the laboratory will be on the faculty. The first will be a short course—Oct. 29 to Nov. 15—for logging superintendents, camp foremen, forest rangers, and fire wardens.

Under the weight of large amounts of storage, a floor and parts of a wall collapsed at the warehouses of the M. Burstein Co., Neenah, dealers in paper and rag stock.

New Carton Company

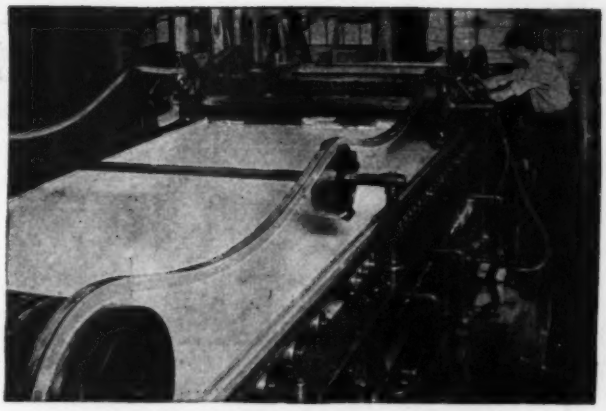
A new carton company has been organized by Neenah and Menasha business men and has been incorporated under the name of the Wisconsin Carton Co. The authorized capital is $100,000.

James T. Mader, Adam Schwertzbauer and Alfred Danke are the incorporators. The company has taken over the plant of the defunct Elm Paper Box Co., on S. Commercial St., Neenah. Mr. Maeder was formerly superintendent of the Wausau plant of the Menasha Printing and Carton Co. From thirty to fifty employees will be engaged.

The estate of the late William Buchanan, one of the founders of the Appleton Wire Works, Appleton, is now being divided among the heirs. The estate approximated $300,000. A part of the inheritance went to G. E. Buchanan, present general manager of the Appleton Wire Works.

The scheduled receivership sale of the Peshtigo Paper Co., which had been set for September, has again been postponed, this time until October 24. Meanwhile the company has been making excellent progress under the management of P. M. Allen, the new receiver. During the month of August several records were broken. The company exceeded its best previous production record, sales reached their highest point in the company's history, and an intensive safety campaign resulted in a perfect safety record for the month.

Deepening of the channel of the Fox River by the government this year has resulted in a shortening of the rail journey of pulp wood for the Fox River Valley paper mills.



Longer life to your felts!

MANY a good felt has had its length of service unnecessarily shortened by improper washing. The use of alkalies or soda ash tends to weaken or otherwise injure the fibres.

Longer felt life is invariably the rule in paper mills where washing is done the Oakite way. For Oakite cleans *safely*, removes every trace of dirt, sizing and other foreign matter without harming fibres in any way, rinses easily and completely, and leaves felts as soft and as absorbent as new.

Oakite washing will help you keep your felt expenditure at a minimum. Write us for details, or ask to have one of our Service Men call. No obligation.

Oakite is manufactured only by

OAKITE PRODUCTS, INC., 16A Thames St., NEW YORK, N. Y.
(Formerly OAKLEY CHEMICAL CO.)

Oakite Service Men, cleaning specialists, are located at

Albany, N. Y., Allentown, Pa., Altoona, Pa., *Atlanta, Baltimore, *Birmingham, Ala., *Boston, Bridgeport, *Brooklyn, Buffalo, *Camden, N. J., Charlotte, N. C., Chattanooga, Tenn., *Chicago, *Cincinnati, *Cleveland, *Columbus, O., *Dallas, *Davenport, *Dayton, O., Decatur, Ill., *Denver, *Des Moines, *Detroit, Erie, Pa., Flint, Mich., Fresno, Cal., *Grand Rapids, Mich., Harrisburg, Pa., Hartford, Houston, Tex., *Indianapolis, *Jacksonville, Fla., *Kansas City, *Los Angeles, Louisville, Ky., *Memphis, Tenn., *Milwaukee, *Minneapolis, *Moline, Ill., *Montreal, Newark, N. J., Newburg, N. Y., New Haven, *New York, *Oakland, Cal., *Omaha, Neb., *Philadelphia, *Pittsburgh, Portland, Me., *Portland, Ore., Providence, Reading, Pa., *Rochester, N. Y., Rockford, Ill., *Rock Island, *San Francisco, *Seattle, St. Louis, South Bend, Ind., Syracuse, N. Y., *Toledo, *Toronto, Trenton, *Tulsa, Okla., Utica, N. Y., *Vancouver, B. C., Williamsport, Pa., Worcester, Mass.

*Stocks of Oakite materials are carried in these cities.

OAKITE

TRADE MARK REG. U.S. PAT. OFF.

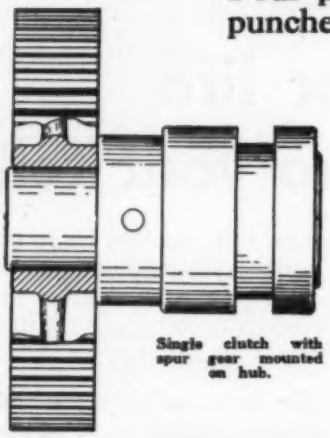
Industrial Cleaning Materials and Methods

THE JOHNSON FRICTION CLUTCH

as used on

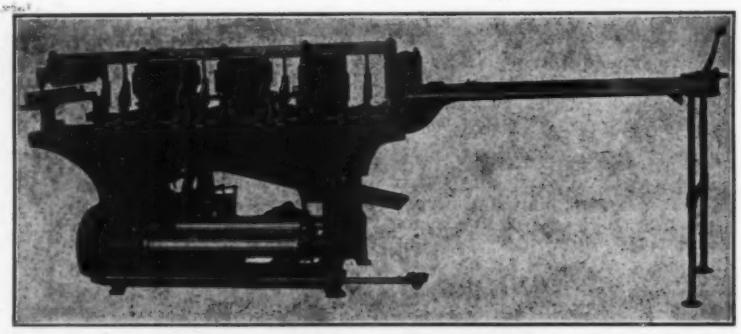
The New Eight-Hole Rosback Paper Perforator

Four perforating heads and the heading punches all in operation shown below.



Single clutch with spur gear mounted on hub.

Installed with spur gear mounted on the clutch hub, the No. 5 JOHNSON Single Clutch is used on the main drive shaft. The clutch operates 7,680 times per day, running steadily day in and day out, and it always stands up. THAT'S SERVICE!



Courtesy F. P. Rosback Co., Benton Harbor, Mich.

Johnson Clutches Are America's Favorite on Paper Machines

The illustration above shows the style of perforating head which can be used in connection with the punch heads. JOHNSON Clutches are admirably adapted for any light-powered paper machine built. Thousands of plants all over the country find they can depend on JOHNSONS for perfect clutch service. Equip with JOHNSONS.

Write for Catalog "P. I."

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

Great Lakes boats are now plying up the river as far as De Pere where the wood is reloaded upon freight cars. Most of the pulpwood is destined for Appleton mills.

A. J. Hamlin, former Canadian sales representative of the Kotex Co., of Neenah, has been sent to England to take charge of the company's sales in that country.

The Appleton Coated Paper Co., Appleton, and the Kimberly-Clark Co., of Neenah, have entered exhibits at the International Direct Mail Advertising Association exposition, which will take place this month in Chicago.

A fire that kept the fire department at work all night caused some damage to the Menasha Paper Mills when large storages of baled straw became ignited either from sparks from a locomotive or through spontaneous combustion recently. Fifteen streams of water were used to keep the blaze from spreading. In appreciation for the services of the firemen, the company presented them with a check for $100 for their firemen's pension fund.

Paper Course Instruction Resumed

Courses in paper and pulp instruction will be resumed in the Vocational School at Appleton this month. The Appleton school originated the movement in Wisconsin. This year an itinerant instructor will be used by schools of a number of paper mill cities in Wisconsin, including Green Bay, Kaukauna, Neenah and Menasha. Arthur W. Bouffard, formerly of Rumford, Maine, will be the instructor.

H. G. Noyes, last year's instructor, has taken a position with the State Department of Vocational Education, as a co-ordinator in paper and pulp manufacture instruction.

The old office of the Atlas Mill, now the property of the Kimberly-Clark Co., at the foot of Jackman St., Appleton, Wis., has been demolished by crews of the city street department to make way for a new street and pavement. The property was deeded by the paper company to the city.

An addition to the finishing room of the Lake Superior Paper Co., of Ashland, Wis., is being built. The additional space will be used for machinery and for storage, it is announced.

The Riverside Fibre and Paper Co., of Appleton, Wis., is building a $20,000 addition to its plant. The boiler room and finishing room will be enlarged. There will be a new three-story unit of 66 by 78 feet. C. R. Meyer and Sons Co., of Oshkosh, has the contract.

Inventions on paper converting apparatus have been patented by Clinton O. Gammell and Austin E. Cofrin, both of Neenah.

Foremen's Training Classes

Pleased with the success of the first Foreman's Safety School, which was held in Appleton, last year, those sponsoring the movement are making plans for another course of study along these lines in Appleton this winter.

A series of seven meetings will be held, some of them sectional for the various industries, and the last a general meeting in the form of a banquet. Certificates will be given to those who attend regularly. The Chamber of Commerce, the Vocational School, and local industries, co-operating with the National Safety Council, are promoting the movement.

The entire paper field in New York City will be intensively covered in the 1927 Red Cross Roll Call, according to the plan of representative leaders who, as volunteer chairmen of specially organized groups, are already formulating a comprehensive Roll Call program. Adam K. Luke of West Virginia Pulp and Paper Co., heads as chairman the paper manufacturers and dealers group, and Theodore E. Casselman of T. E. E. Casselman, heads the paper boxes group.

A Century's Fund Of Engineering Data and Experience

AVAILABLE FOR DESIGNING

WALDRON Complete FACTORY LAYOUTS

for Coated Paper and Wall Paper

Back of the designing, fabricating and installing of Waldron Complete Factory Layouts is this wealth of knowledge and experience—possessed by no other organization in the field—to provide absolute assurance of utmost efficiency and economy in layout, operation and maintenance of your machinery. With Waldron, the age of experimentation has long passed. It cannot prove expensive to you.

Coating and Embossing Machines, Surface and Intaglio Printers, Mixing Tanks, Brush Polishers, Gumming Machines, Festooners and Drying Machines, Rerolling Machines.

Inquiries of any nature regarding present or proposed factory layouts will receive our immediate attention. Write us. No obligation.

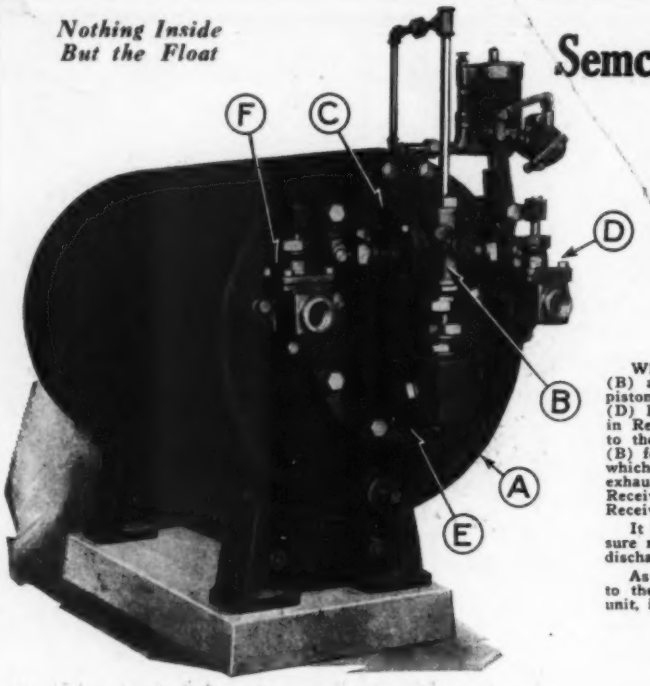
JOHN WALDRON CORPORATION

Main Office and Works - NEW BRUNSWICK, N. J.

208 West Washington St., CHICAGO

30 East 42nd Street NEW YORK

Nothing Inside But the Float



The Semco Automatic Receiver Pump

Operates on either steam or compressed air. We can furnish pump and receiver complete, or equip your present receiver.

Semco Automatic Receiver Pump

Designed to efficiently handle high or low temperature fluids such as condensate, oil, acids, etc. Especially applicable for use in draining and pumping condensate from paper machines, and feeding boilers.

The "Semco" has the least number of parts and is the most efficient pump on the market for handling high temperature fluids.

OPERATION:

When Receiver (A) fills float actuates Cylinder control Valve (B) allowing pressure to flow to operating cylinder (C) forcing piston to its extreme travel, opening High pressure Steam Valve (D) High pressure steam flowing to Receiver (A) through ports in Receiver Head (E). When fluid in Receiver (A) has lowered to the sealing level float again actuates Cylinder control Valve (B) forcing piston in Cylinder (C) to its extreme opposite travel, which action closes High pressure steam Valve (D) and opens exhaust or equalizing Valve (F) discharging the pressure in Receiver (A) through port in Receiver Head (E) which allows Receiver (A) to refill.

It is to be noted that the live steam builds up only to the pressure required to force condensate out of Receiver, as condensate discharges as fast as steams flows in.

As the live steam used to discharge condensate, is vented back to the unit being drained, heating system or any low pressure unit, it is obvious that the live steam consumption is very small.

Stebbins Engineering & Mfg. Co.

WATERTOWN, N. Y.

PORTLAND, OREGON

Is the ideal location for that new Pulp and Paper Mill of yours.

It is in the heart of the big timber regions of the Pacific Northwest. It has an abundance of good water and plenty of cheap hydro-electric power.

May I serve you in the location, design, and construction of that new mill of yours?

HENRY BLACK

Complete Building Construction

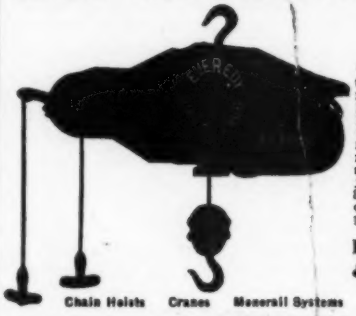
383 Pittock Block - - - Portland, Oregon

Telephone Broadway 8060

Iron Workers, Cement Workers, Bricklayers, Carpenters, Roofers, Plumbers, Electricians, Cabinet-makers, Painters and Paperhangers; also Real Estate Bonds and Mortgages

500 lb. Electric Hoist

$225.00



This Everedy Hoist is the most accessible hoist made. Light—500 lb. hoist weighs 225 lbs.; 1000 lb. hoist 250 lbs. Speedy—40 feet per minute A. C., 35 feet per minute D. C. Limit stop at top and bottom adjustable to any point. Suspended wherever chain or air hoist is placed.

READING CHAIN & BLOCK CORP.

READING, PA.

GRANT GEAR WORKS

Estimates and gear advice promptly and cheerfully given

Send for Our Catalog of Stock Gears

Office and Works

Second & B Sts., Boston, Mass.

PACIFIC COAST NEWS

New Zellerbach Company Named

"Fireboard Products, Inc." has been selected as the name for the consolidation recently effected by the Zellerbach Paper Company and the Paraffine Companies, Inc. The merger, which created a new pulp, boxboard and fabricating company having properties of an estimated book value of approximately $15,000,000, will form one of the largest companies in its field in the United States.

J. D. Zellerbach, president of the National Paper Products Company, a subsidiary of the Zellerbach Paper Company, will be president of the new firm. H. D. Patterson, general manager of the board and paper division of the Paraffine Companies, Inc., is to be vice president and general manager.

Selection of the name Fireboard Products, Inc. was announced as tentatively decided upon. It will be used unless something unforeseen occurs to prevent it.

The new company will start operations November 1, 1927, and it is probable that its head offices will be in the Russ Building, San Francisco. The company takes over the board and box business of the two parent concerns and eliminates competition which has existed between them in the past. Pacific coast paper box dealers believe the merger will have a stabilizing effect on price conditions in the industry. A score or more plants operated by the two major companies up and down the coast are included in the combination. Zellerbach's contribution to the new firm represents between 15 and 20 per cent of the Zellerbach $34,000,000 business. Paraffine puts into the new company a large proportion (somewhat less than half) of its holdings. Schumacher Wall Board, a Paraffine subsidiary, is not included. The new company will employ about 2,500 persons and produce about 560 tons of board of various grades, daily.

Following announcement that a group of Seattle financiers planned to establish a small tissue mill in Kelso, interest in the pulp and paper industry at that town has been greatly stimulated. Philip Ablan, owner of the West Paper Company, Seattle, is one of the leaders in the enterprise, and Dan J. Albertson, paper mill engineer of Seattle, formerly of Kalamazoo, Mich., is another. Fred G. Statham, sales manager of the West Paper Company, also is interested. It is proposed to incorporate a company in the amount of $500,000, under the name of the Western Paper Mills. The company will be composed of 50,000 shares of cumulative preferred eight per cent stock at $10 per share and 100,000 shares of no par value common stock.

Latest available reports indicate that the Pacific Lumber Co. still is studying the possibilities of a pulp mill at Scotia, California, near Eureka. Some tests are being made. The company operates in a redwood region and some time ago sent a shipment of redwood east to test for pulping qualities.

Union Bag to Build

The Union Bag and Paper Corp., New York, announced on September 8 its definite intention to build a kraft pulp and paper mill at Tacoma, Washington, with an initial capacity of 120 tons per day. C. R. McMillen, vice president, set at rest by this announcement, rumors that Union Bag intended to expand either in the South or the West.

The new mill will be built on a site held by the St. Paul and Tacoma Lumber Co., on Tacoma's extensive tideflat area. It has also become known that this lumber company will start work soon on a big hemlock mill designed to cut 150,000 board feet per eight-hour shift.

Major Everett G. Griggs, president of the lumber company, expressed satisfaction that his firm was to "tie up" with a concern as well known in the paper industry as the Union Bag and Paper Corp.

"The pulp mill," he said, "is being handled and financed

There's Added Service in Every Barrel

NOT merely the lasting service of a superfine paint, but the preliminary service of getting the paint where you want it—on the wall.

With the purchase of Vorcolite comes the use, without cost, of our big, speedy Vortex painting equipment, that any handy man can operate and cut painting costs to the minimum.

Vorcolite is so rightly pigmented that a single application with our equipment equals two or three brush-applied coats of ordinary paint. Send today for check sheet which helps you to estimate painting on a square foot basis.

Painting Equipment is Loaned

THE VORTEX MANUFACTURING CO.
1981 West 77th Street . . . Cleveland, Ohio

Vorcolite

and the VORTEX PAINTING METHOD

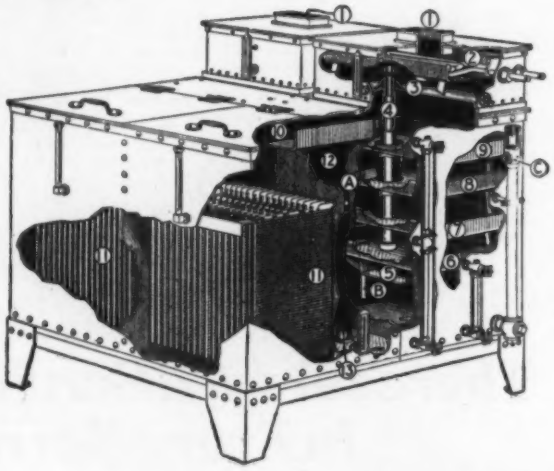
Fill out and mail

VORTEX MFG. CO.
West 77th St., Cleveland, Ohio
Please send us check sheet to outline our painting problem. It is on new construction? _____ Buildings already in use? _____
Company .....
Address .....
Attention .....

V-27

OIL: The thing every bearing *must have!*

Bearings must have clean, cool oil, *continuously,* or your plant shuts down, as everybody knows. The way to be *sure* of good oil, continuously, is to have it handled by a Bowser system—with these eleven advantages:



1—Entirely automatic.
2—Plenty of cool, clean oil all the time.
3—Mechanical efficiency of units greatly increased.
4—Oil used over and over again; none wasted.
5—Cost of attendance is reduced.
6—Wear practically eliminated; over-heating does not occur.
7—Depreciation greatly reduced.
8—Lubricant washes out foreign substances.
9—Fire hazard decreased.
10—Compensation losses reduced—men do not have to climb around machinery.
11—Periods between bearing adjustments materially increased, because oil retains full lubricating quality.

For illustrated Bulletins, address Dept. 3.

S.F. BOWSER & COMPANY, Inc.
LUBRICATION ENGINEERS AND MANUFACTURERS
FORT WAYNE, INDIANA, U.S.A.
52 FRASER AVENUE, TORONTO, CANADA

FOSTER WHEELER

FRACTIONATING TOWERS HEAT EXCHANGERS
STEAM JET AIR PUMPS SUPERHEATERS
TUBE STILLS VACUUM PUMPS
WATER COOLED FURNACE SURFACES
BRASS AND COPPER TUBING AND PIPE

AERO UNIT COAL PULVERIZERS
AIR HEATERS CENTRIFUGAL PUMPS
CONDENSERS COOLING TOWERS
ECONOMIZERS EVAPORATORS
EXPANSION JOINTS FEED WATER HEATERS

FOSTER WHEELER CORPORATION, 165 Broadway, New York
Works: Carteret, N. J.; Dansville, N. Y.; Newburgh, N. Y.

Atlanta	Chicago	Dallas	Kansas City	New Orleans	Salt Lake City
Birmingham	Cincinnati	Denver	Los Angeles	Pittsburgh	San Francisco
Boston	Cleveland	Detroit	Milwaukee	Philadelphia	London, Engl.

Makes Pipe Lines Leak-proof

EBONITE Keeps Joints Tight

Ebonite Sheet Packing solves the troublesome problem of uninterrupted pipe line operation in the paper industry where continuous service is of vital importance.

Ebonite is dependable, long-lived and thoroughly efficient. It retains its resilience under highest pressures and temperatures. It has no superior on lines subject to excessive vibration and expansion.

Quaker City Rubber Co.
Wissahoming, Philadelphia.
Branches: New York, Chicago, Pittsburgh, San Francisco

MAGIC BOILER PRESERVATIVE

"The Pioneer Boiler Treatment"

Positively removes and prevents scale, stops minor leaks, pitting and corrosion

GARRATT-CALLAHAN CO.
310 South Michigan Avenue, Chicago

148-156 Spear St.
San Francisco

MAGIC
ESTABLISHED 1904

1328 Broadway
New York City

entirely by Union Bag interests. Our part consists in building a 150,000-foot hemlock mill, entirely our own enterprise. However, the pulp mill in connection will give us an outlet for waste and lower grade logs."

McMillan arrived in Tacoma during September and it was indicated that construction of both mills would start soon. The proposed site has ample water frontage on which Union Bag is expected to construct its own docks to facilitate shipmen. of products to Eastern seaboard ports. The Tacoma tidenat area is served by a belt line and has physical connection with five transcontinental railroads.

Low electrical power rates and cheap water, offered by the public utilities departments of Tacoma were said to be largely instrumental in bringing the big eastern company to that city. Union Bag expects to use 7,000,000 gallons of water daily, to be supplied at a rate of 1½ cents per 100 cubic feet. The city now is working on a project to develop Lake Kapowsin, which would bring into Tacoma approximately 30,000,000 gallons of water daily, available for industries.

The Willapa Harbor district is interested in prospects for a pulp mill at Raymond, Wash. J. G. Startup and T. G. Donaca, Portlanders, have made several trips to Raymond within the past few weeks and it is reported they intend to take over the Hanify mill there, now idle, and build a combination saw mill and pulp mill.

Progress at Port Townsend

The contract has been let by Zellerbach officials for construction of the big $3,000,000 kraft mill at Port Townsend, Wash. It was awarded to A. Guthrie and Co., Portland, Ore. Preliminary work already has been done, test piling driven and work was started about the first of September.

The residents of Port Townsend, anxious to get the mill located there, got out a big petition signed by practically all the registered voters, pledging support for an $800,000 bond issue necessary to insure the building of a 16,000,000 gallon water system to supply the mill. When the bond election was held, 879 citizens voted for the bonds and only 5 negative votes were cast.

Horatio C. Flagg and Elbert M. Chandler are incorporators of the Hama Hama Power and Paper Co., of Olympia. The capitalization is $50,000.

Additions for Inland Empire Co.

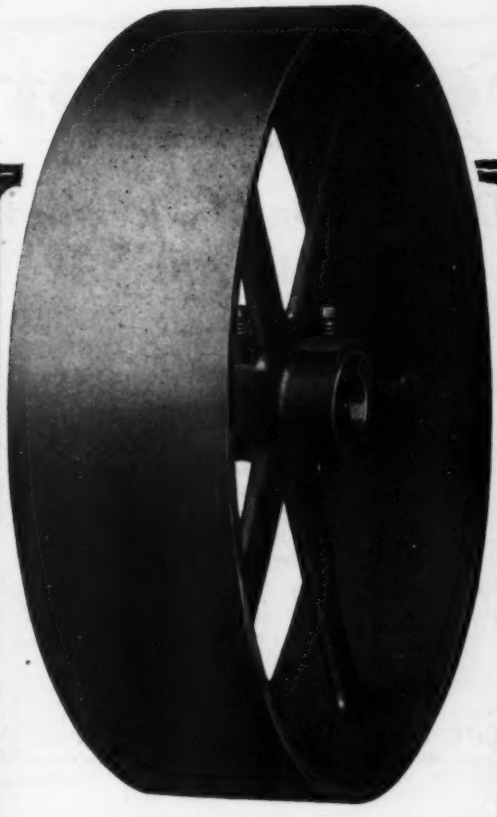
The Inland Empire Paper Company at Millwood, Wash., near Spokane, is considering constructing a hydro-electric development totaling 13,000 horsepower. In connection with this a new 75-ton paper machine would be built. Waldo Rosebush, treasurer of the firm, declares the company's production would be increased about 80 per cent by these additions.

"Many questions enter into the decision," he said, "including the character of the market and its effect on the growth of the industry; the matter of competition from other districts which may have greater advantages; the trend in taxation; the attitude and policy of the railroads as to the upbuilding of the territory; the freight rates applicable; the location and stability of the supply of raw materials and the attitude of the community toward the development."

The Northwestern Pulp Sales Co. is now located at 3101 L. C. Smith Bldg., Seattle.

A $600,000 pulpwood plant is under contemplation at New Westminster, B. C. State Senator Charles G. Heifner, of Seattle, will present the plan before the Westminster Board of Trade.

N. R. Crawford, for several years Director of Sales for the Industrial Works, Bay City, Michigan, has resigned, effective October first. No announcement has been made as to his future connection.



Drive Right

Don't make your belts take all the shocks unaided.

Use CAST IRON PULLEYS of proper design and correct weight to help. They are the only kind having the stamina, and the ability to store up sufficient energy, to drive right through heavy starting and peak loads without a tremor. And what is more important you will no longer be troubled with breaking belts.

THE T. B. WOOD SONS CO. LINE

is made of Cast Iron, which is strong, rigid and of permanent structure. The line includes Pulleys, Hangers, Couplings, Flexible Couplings, Conveyors, Friction Clutches, Pillow Blocks, the U. G. Automatic Belt Contactor and Ball Bearing equipped units.

Send for catalog 70.

T. B. Wood's Sons Co.
Chambersburg, Pa.
POWER TRANSMISSION MACHINERY AND SPECIAL MACHINERY

Ferguson
ENGINEERS

Design—Build—Rebuild
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POWER PLANTS *and*
COMPLETE PAPER MILL
PROJECTS

One organization under one contract guarantees price, delivery date and satisfactory results.

Representative
Ferguson customers in the paper industry:

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THE H. K. FERGUSON COMPANY
Hanna Bldg. Cleveland, Ohio Phone Superior 3620
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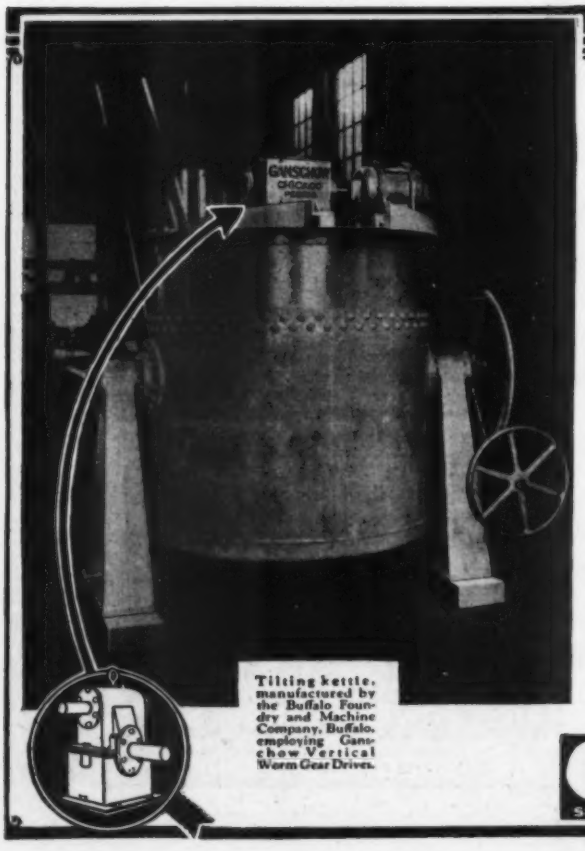
NO FELT MARKS—
With Fitchburg Felts

THE smooth, tightly-woven surface of all Fitchburg Cotton Dryer Felts insures paper free from felt marks.

¶ The finest papers—bonds, ledgers, fine writing—are made better and smoother when Fitchburg Felts are used.

¶ Manufactured in English weave, two, three, four, five and six ply, from 60 to 210 inches in width.

FITCHBURG DUCK MILLS
ESTABLISHED 1844
54 Duck Mill Road FITCHBURG, MASS.



Tilting kettle, manufactured by the Buffalo Foundry and Machine Company, Buffalo, employing Ganschow Vertical Worm Gear Drives.

Vertical Worm Gear Drives

Ganschow Vertical Worm Gear Power Transformers are widely used as drives for tilting kettles, agitators, mixers and other machinery that rotates on a vertical axis.

These units have many advantages over other types and designs. They are low in price and higher in efficiency, and eliminate the need for a costly vertical motor with integral speed reducers.

The design of this unit is such that it meets all load conditions, requires less head room. and is easily adapted to integral construction.

If you contemplate speed reduction of any kind, particularly vertical driving, get complete information on the Ganschow Advanced Type Worm Gear Power Transformer. The saving in cost is surprising, and the ultimate efficiency will please you. Write today.

WILLIAM GANSCHOW COMPANY
1115 W. Washington Blvd. · · Chicago
Representatives in all principal cities

GANSCHOW
SPEED TRANSFORMERS CUT GEARING

Revised Census for Paper Industry Announced

A committee composed of representatives of practically all groups in the paper industry met last spring to determine what statistics the Bureau of the Census could collect for better use by the paper industry.

After several meetings, largely attended and following many sub-committee meetings, recommendations were made as follows:

1—Changes in the paper schedule in line with the growth of the industry and its various branches.

2—Changes in the wood pulp schedule which would identify this division as an industry within the industry.

3—A new schedule for converted paper products which would identify many grades of paper not heretofore given recognition by the Department except in compilations as to value and in conjunction with many other extraneous items which belonged elsewhere.

4—An annual abbreviated schedule for production, etc. of paper, wood pulp and converted paper products instead of the biennial schedule now in force.

The proposals, with changes suggested, were all accepted by the Bureau of the Census. A. H. O. Rolle and M. B. Lane of the Census Bureau served on the committee and as a result were prepared to submit the new schedules in a form satisfactory to the committee

Co-operation was received from John Matthews, Jr., assistant director Bureau of Foreign and Domestic Commerce. LaVerne Beales, chief statistician, J. F. Daley, Mr. Fitzpatrick, all of the Bureau of the Census and from Charles W. Boyce, of the Forest Service.

The chairman of the committee was C. B. Morgan, treasurer, S. D. Warren Company, and the secretary, Paul S. Hanway, statistician, American Paper and Pulp Association.

M. C. Dobrow, Writing Paper Manufacturers Association, G. A. Ware and George Bearce, Newsprint Service Bureau, Grafton Whiting, H. A. Dickie and B. J. Raeber, Paperboard Industries Association, C. E. Dobson, Southern Kraft Manufacturers Association, D. A. Wilcox, Oxford Paper Company, H. C. Scott, International Paper Company, Stanley Byron, Hammermill Paper Company, and many others gave considerable time and co-operation to the compilation of these schedules in a most helpful manner.

The Paper Schedule—All reference to woodpulp and other subjects was removed from this schedule. Changes were made as recommended by the following groups: Newsprint Service Bureau; Book Paper; Writing Paper; Tissue Paper; Southern Kraft; Paperboard Industries Assn.; Glazed and Fancy; Waxed; Gummed Tape; Absorbent; Coated Book Paper; Carbon Paper; Cartons & Containers; Napkins; Toilet; Twisting; Towels; Cetd. Board, etc.; Paper Boxes; etc.

Practically every grade of paper will be benefitted by these schedules since they will show in more detail the actual production and at the same time indicate trends of consumption not heretofore ascertainable.

The paper board schedule will be uniform with that of the industry's statistical program.

Book papers will be classified to indicate consumption by books, lithograph, offset and body stock for conversion.

The matter of catalog and news tablet has been settled as applied to newsprint and allied products.

Sulphite bond paper receives a separate classification.

Greaseproof and glassine papers are separated in the new schedule.

Kraft wrapping is subdivided into Northern, Southern and Pacific Coast.

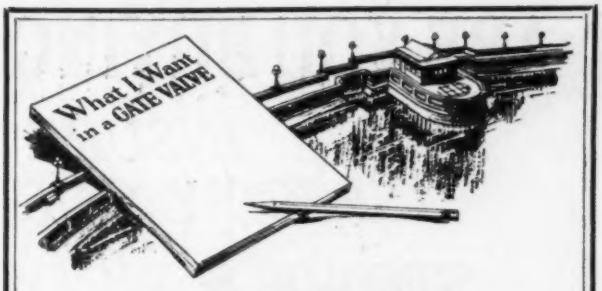
All board products are classified under the general heading "Paper boards."

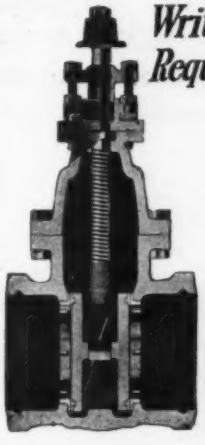
Felts, sheathing and asbestos filled papers receive separate classifications.

In addition to the foregoing, the amount consumed at the mill, transferred to other mills owned by the company and amount sold will be reported in three separate columns.

The paper schedule, in its general make-up, is suitable to better use by the industry and should aid in stabilizing the various grades since, capacities also will be required.

The American Paper and Pulp Association feels that a





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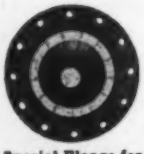

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very definite contribution has been made toward stabilization in the industry through the development of these schedules and comments so far received from many mills indicate that the new schedules will be of practical value to every pulp and paper mill.

Mr. Hanway recently conferred with W. M. Steuart, director, Bureau of the Census and other members of the department, at which time approval of the new schedules was given and a promise made that beginning with 1928, an abbreviated annual census will be taken for the industry. This will give annual production data by grades—something which should have been in force for a billion dollar industry years ago—and is a further step toward the stabilization within the industry.

A report on the woodpulp and the new converted paper schedule will be published in the near future.

Advisory Members of A. S. M. E. Committee

Upon request from "A Committee on Standards for Graphic Presentation" of the American Society of Mechanical Engineers, the American Paper and Pulp Association has suggested the names of the following men who are concerned with statistical work for their respective companies or for the industry to serve in an advisory capacity in the particular problem of charting statistics: M. C. Dobrow, Writing Paper Manufacturers Association, New York; Grafton Whiting, Paperboard Industries Association, Chicago; Stanley Byron, Hammermill Paper Company, Erie, Pa.; Paul S. Hanway, American Paper and Pulp Association, New York. The request from the Society of Mechanical Engineers was sent to the association as the result of the work which the association is doing in the development of statistics for the paper industry.

Paper Represented at Foreign Trade Council

In August the American Paper and Pulp Association was requested by Hon. J. C. MacLean, acting prime minister of the Province of British Columbia, and J. C. Pendray, mayor of the City of Victoria, to extend cordial invitation to leading representatives of the paper industry of the West Coast to attend the fifth annual convention of the Pacific Foreign Trade Council held in Victoria, B. C., September 15-17.

In view of the very helpful contact which the association has had with the National Foreign Trade Council of India House, New York, the association gladly extended the invitation received from British Columbia officials to a number of the leading pulp and paper executives of the West Coast. The association was represented at the meetings in Victoria by several western pulp and paper manufacturers.

Marshall C. Warwick

Marshall C. Warwick, secretary of the American Waxed Paper Association, and the National Association of Gummed Tape Manufacturers, died at St. Luke's Hospital, New York, on Monday, September 12. Mr. Warwick was a native of Michigan and a graduate of Kalamazoo College, Kalamazoo, Mich. He became secretary of the Waxed and Gummed associations late in 1926 after having served for several years as secretary of organizations of Employing Printers, in Syracuse, Erie and Youngstown, Ohio. He made a fine record with the associations and his passing is a serious loss to the groups which he was serving. Because of the passing of Mr. Warwick, Major O. M. Porter, assistant secretary of the American Paper and Pulp Association, attended the regular meeting of the National Association of Gummed Tape Manufacturers, which was held at the Clifton Hotel, Niagara Falls, Ont., Sept. 14 and 15.

In line with assistance which American Paper and Pulp is constantly giving its affiliated associations, Paul S. Hanway, statistician of the association, attended a meeting of the American Waxed Paper Association, held at the Stevens Hotel in Chicago, Ill., on September 28 and acted as secretary of the meeting.

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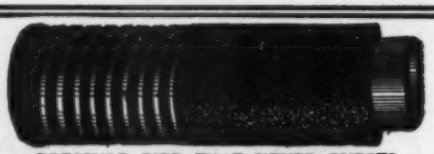

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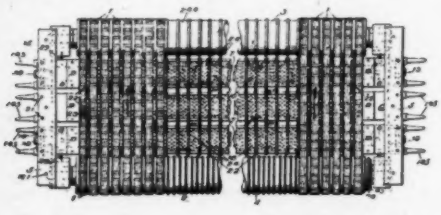
Technical Developments in the Paper Industry

Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Paper Making Machine

THE illustration shows a papermaking machine which is patented in United States Patent No. 1,640,007. A suction box table and a drive roll are combined with a carrier

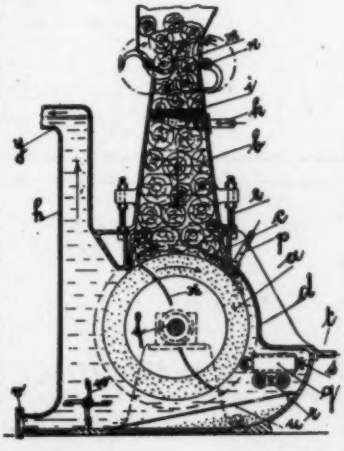


for supporting a wire-screen apron, which is mounted on the drive roll. It is arranged to be driven over the table. The carrier comprises a series of unconnected chains.

New Wood Grinder

IN THE illustration, which shows a form of grinder patented in German Patent No. 445,717, the stone is shown at (a) and perpendicularly over this is arranged the pressure cylinder (b) which becomes wider at the bottom. This feed cylinder sets in a guide (c) of the grinder housing (d) and is fastened by means of the bolts and nuts (e) and hence can be removed when it is worn out. The housing (d) is completely closed in and is provided with a stuffing box (g) where the shaft of the grinder passes through it. The housing (d) does not have the customary stock outlet at its lower portion, but it is provided with stock riser portion (h), so that the stock rises to a certain height which corresponds to the level of the water (i) in the press box (b).

Hence the stone (a) lies under water, and this also refers to the wood which is pressed against the stone and which is stored in the magazine (b). According to the height of the wood in the magazine, the height of the water level (i) and the movement of the wood, the wood will remain under water for a period of one to three hours, before it is ground. Either warm water is fed into the machine through the inlet tube (k) or the magazine (b) is surrounded with a heating jacket into which steam is introduced in order to heat the water that surrounds the wood and hence the wood itself.



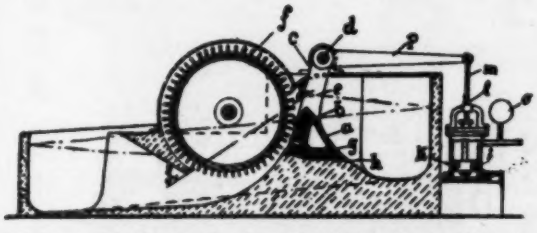
The wood is caused to be moved down the vertical magazine by means of the device (m) which are made in the form of curved arms pivoted at (n). There are two of these devices so that the movement of the wood is uniform in all portions of the magazine. The shape of the wood-moving device is such that while it exerts a certain amount of pressure on the wood, sufficient to move it properly against the grindstone, nevertheless in leaving the magazine it is not caught by the wood which would result in suspension of the operation until it is released.

The pipe (p) is provided at the point where the ground wood leaves the apparatus, through which a strong current of water is directed in order to prevent an accumulation of material. The stone sharpener (q) is arranged right in the mass of ground material so that it can be moved along the width of the stone. Water inlet tubes (t) are also arranged at this point for the purpose of keeping the mass of ground material from collecting at one point. In the lower part of the grinder housing is located a perforated plate (u) in an inclined position under which the sand can settle and in the forward portion of the apparatus there is an opening (v) through which the latter can be removed. An outlet port is provided for the stock in the riser arm (h) at (y) so that the customary stock pump need not be used in connection with this apparatus. The stock flows out of the apparatus and passes directly to the screens, etc.

New Beater

IN PAPER pulp beaters in which the movable bedplate is pressed against the fixed beater roll with a pressure that can be adjusted at will, a certain amount of useful work goes to waste, and this is taken care of in the new form of beater by placing the bedplate in such a position that the amount of power usually lost is reduced to a considerable degree and a greater beating efficiency is obtained.

As may be seen from the illustration, the upper part of the breasting is made in the form of a hollow casting (a) to which the bedplate (b) which is otherwise formed in the

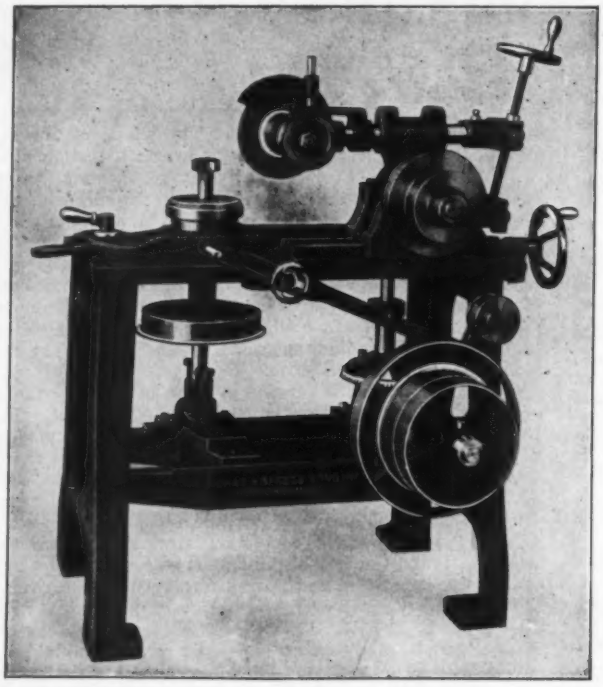


usual manner is fastened. A rather thick shaft (d) is fixed in a horizontal position above the breasting (a). The movable casting (a) is firmly connected with the shaft (d) by means of the lever (e).

The lower wall (g) of the movable breasting (a) is formed in the shape of a cylindrical jacket which has a curve whose center is the center of the shaft (d). The correspondingly formed piece of the beater structure itself (h) is separated by but a small distance from the upper curved piece, as may be seen in the accompanying illustration.

The beater roll (f) is firmly fixed and the bedplate is pressed against the teeth on the beater roll with a pressure which is adjustable in accordance with the character of the stock that is being treated. A lever (p) is fixed on the shaft (d) and the free end is connected with the device that produces the pressure between the beater roll teeth and the bedplate.

Water pressure is used for this purpose, acting against the piston (i) which moves in the cylinder (k). The piston (i) is connected with the lever (p) by means of the piston rod (1) and the connecting rod (m). Water under pressure is allowed to enter the cylinder and press against the pis-



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Hamilton Felts

Something Better In Fourdrinier Wires

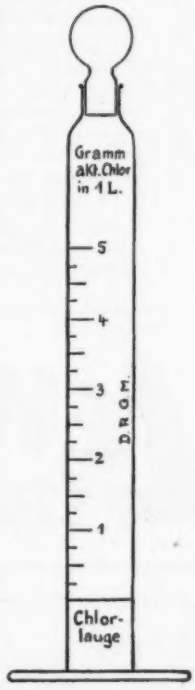
Wisconsin Wire Works

Appleton, Wisconsin

ton (i), moving it down and thus pressing the bedplate against the beater roll. A Manometer (o) is placed on the water line to indicate the water pressure. German Patent No. 442,437.

Simple Process to Determine Active Chlorine

ACCURATE methods are known for determining the active chlorine in bleach liquors but considerable difficulty is experienced in their application. A simple process has also been devised which consists in the titration of the bleach liquors with a solution of sodium indigosulhpate, but the results obtained with it are apt to be inaccurate. The new process combines the accurate sodium thiosulphate process with the indigo method. The simplicity of the process is due to the simple character of the apparatus in which it is carried out.



Neither a burette nor a pipette is used but the "chlorine cylinder" which is shown in the accompanying illustration. This chlorine cylinder has a space in the lower portion for the bleach liquor and the cylinder above this is divided in a scale which reads the grams of active chlorine per liter. No calculations need therefore be made. Several beakers with the concentrated measuring liquids as well as a dropping glass for glacial acetic acid, a standardized measuring flask of one liter volume as well as an empty stock bottle with an emptying cock, must also be provided.

Before the first chlorine determination is made, the concentrated measuring liquid is diluted with boiled water exactly to one liter volume and then filled into the stock bottle.

The chlorine determination, which can be carried out in one to two minutes, is carried out in the following manner: The chlorine solution is filled into the cylinder right to the mark and a few drops of glacial acetic acid are added and then portions of the blue measuring solution are added until after short shaking a blue color remains. The height of the fluid in the cylinder will then give the chlorine content of the sample.

The chlorine cylinder is standardized for chlorine amounts up to five grams per liter. If stronger solutions are measured then the solution is diluted until the maximum chlorine content is less than five grams per liter. The dilution is effected in the cylinder itself by filling the lower volume to the mark (graduation 0) with the chlorine solution and then at a chlorine content between five and ten grams per liter with water up to the mark 1, between 10 and 20 grams per liter up to the mark 3 and between 20 and 30 grams per liter up to the mark 5. The cylinder is shaken and then sufficient of the liquid is poured out until the remaining liquor in the cylinder reaches just to the 0 mark. The analysis is then carried out in the regular manner and the results multiplied by 2, 4 or 6 as the case may be. Zellstoff und Papier, 1927, pages 363-4.

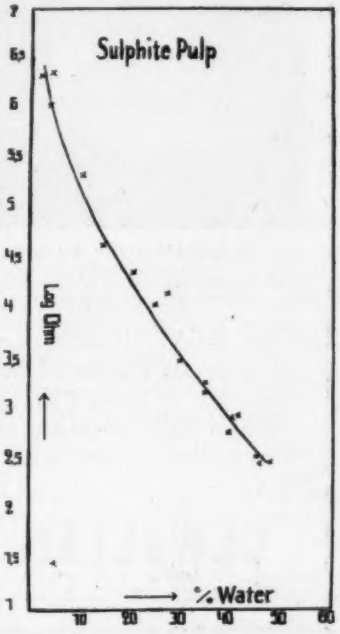
Beater

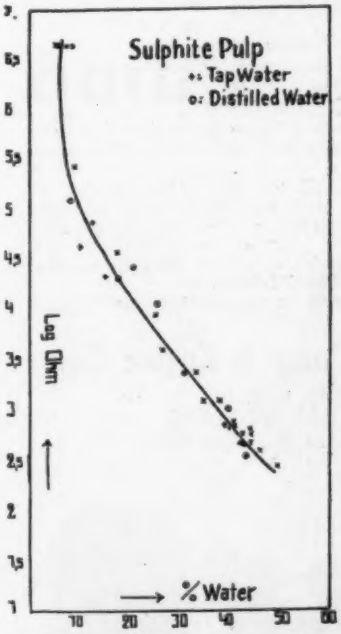
THE beater, which is shown in the accompanying illustration and which is patented in United States Patent No. 1,639,917, contains a beater roll (27) and a motor which

have their axes in alignment. There is a connection between the motor and the roll for driving the latter directly. This connection is adapted to shear under a predetermined stress. Means are also provided for moving the motor and the roll vertically while retaining the horizontal axes in alignment.

Measuring Moisture in Sulphite Pulp with Aid of Electric Current

A NUMBER of investigations have been carried out and considerable data was collected on the relation between the electrical resistance of the sulphite pulp samples and the proportion of moisture contained in them. The testing apparatus was of very simple character. The pulp samples were at least 12x12 centimeters and were placed on a flat metallic surface of approximately 38x24 centimeters (consisting of an iron plate covered with tin) and on top of pulp was placed an iron part of 11x11 centimeters surface area provided with a tinned iron plate and carrying 1350 grams in weight. The latter electrode was connected with the positive pole of the electric line (220 volts), an incandescent light being connected in the circuit to protect against short circuit and the metallic under surface was connected with the negative pole. Three current measuring instruments may be shunt-connected into the circuit, the first having a range of zero to one ampere, the second from 0 to 750 milliamperes and the third 0 to 0.15 milliampere. Care must always be taken that the flat side of the pulp sample lies upward. The voltage drop between the two electrodes is measured from time to time by means of a voltmeter.





The results obtained from these tests are given in three tabulations in the original article and are plotted in curves which are shown herewith. Each curve pertains to a sulphite pulp of definite degree of hardness. The samples of pulp were moistened with ordinary tap water or distilled water. There is no difference in the resistance results and either distilled water or tap water may be used at will. This phenomenon is explained in that the carbon dioxide in the air or in the pulp sample itself is of prime importance in conducting the current through the pulp.

As may be seen from the figures, the electrical resistance of the sulphite pulp is extraordinarily dependent on the moisture content of the pulp. If the latter varies for example by tenths, the resistance will vary by hundred thousands or millions, so that the logarithms of these values must be used in plotting them in curve form. It is noticeable that some of the results do not lie on the curve which may be assigned to

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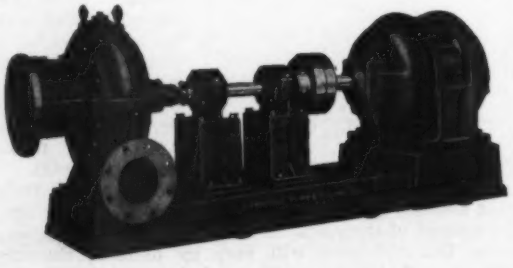

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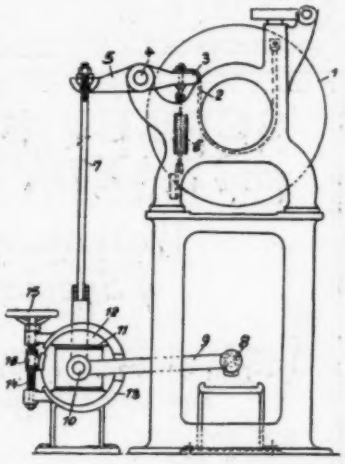
the crudeness of the apparatus used in testing the pulp. It is also noticeable that the path of the curve varies in accordance with the quality of the pulp, or at least within the range of zero to approximately twenty per cent moisture. Further experimentation is necessary to determine whether or not this variation is due to some detail in the testing method or to a peculiarity of the pulp itself. In any case it may be concluded that this method affords a very rapid practical way to determine the water content of pulp and the results are accurate enough for all practical purposes. Der Papierfabrikant, 1927, pages 81-3.

Rotary Knot Catcher

THE knot catching cylinder of the rotary apparatus must not only be shaken but must also rotate, so that the impurities in the stock can be removed from the cylinder through a proper opening at each revolution. It is for this reason that the shaking and the speed of rotation must be adjusted for each kind and fineness of beaten stock and it must be possible to make this adjustment during the operation of the machine.



The invention which is patented in German Patent No. 443,885 and which is shown in the accompanying illustration is concerned particularly with this feature of the operation of the machine. As the illustration shows, the cylinder or drum (1) is suspended in the belts (2), one end of which is fixed to the frame of the machine and the other end of the arm (3) of a two-armed lever (3) and (5) with its fulcrum at (4). A spring (6) tends to pull the end (3) of the lever upwards. A rod (7) is fastened to the arm (5), which gives the drum (1) a shaking up and down motion. This motion, due to the manner in which the drum is suspended, also gives it the desired rotary motion.

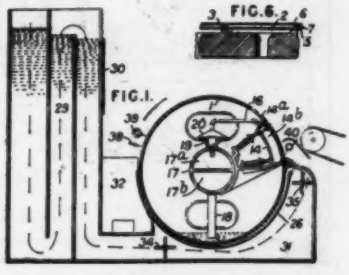
The driving mechanism consists of a crank drive (8) and (9). The connecting rod (9) is connected to the bearing (10) of the cross-head (11). The slide guide (12) of this cross-head is formed in the shape of a cylinder on the outer surface and is held in a cylindrical housing (13), so that the slide guide (12) can be rotated in a plane which is perpendicular to the rotary trunnion (10). The shifting in the position of the guide is accomplished with the aid of hand wheel (15) which is fastened to and turns the spindle (14) to which the guide cylinder (12) is fastened by means of the socket piece (16).

In the drawing the position of the various parts is such that the guide surface of the guide device is parallel with the line that is drawn between the trunnion of the crank drive (8) and the bearing (10). If the guide is shifted to one side or the other by means of the hand wheel (15), then the position of the guide is shifted at an angle to the vertical and the motion that is transmitted by the cross-head (11) to the rod (7) and thence to the drum (1) is changed to a degree which is dependent on the amount of shifting. Thus the amount of shaking and the speed of rotation that the cylinder receives is under control. One important feature of this system of control is that the motion of the cylinder and its rate of rotation may be altered while it is operating. German Patent No. 443,885.

Cylinder Paper Making Machines

THE cylinder (1), shown in Fig. 1, which rotates in the vat (31) has an unobstructed interior and is provided with suction means which withdraw the water from the bottom of the cylinder and reduce the air pressure in the interior above the water. The cylinder is provided with longitudinal perforated grooves (2) see Fig. 6, the ridges (3) between which are notched to receive a helically wound wire (5) flush with the tops of the ridges. The wire cloths (6) and (7) are supported on the wires (5).

The cylinder rotates on a hollow shaft (17) which is divided longitudinally into compartments (17^a) and (17^b), the lower one having depending pipes (18) stretching below the surface of the water, and the upper one having pipes (19) covered by cowls (2), open to the interior of the cylinder. The compartments (17^a) and (17^b) open into pedestals which are divided interiorly and are connected to air suction means and a water pump respectively. A box (14) supported from the hollow shaft (17) and pressed against the cylinder by springs, is divided into compartments (14^a) and (14^b), the former being connected through a pipe (16) to air pressure to detach the formed paper from the cylinder.



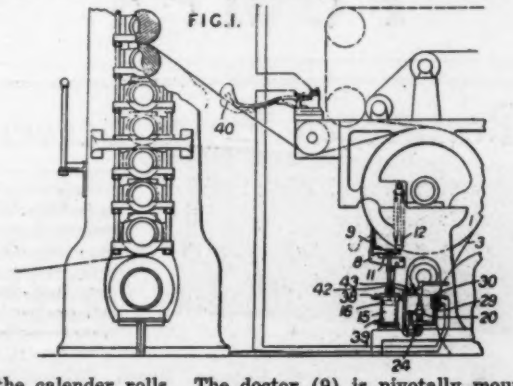
The pulp flows from the head box (29) into the vat (31), being agitated by stirrers (34) and (35) and over the adjustable partition (26) round the cylinder into the box (32), which also receives the overflow from the adjustable gate (30) regulating the head. Water sprays (38) and (39), the latter of which is movable across the drum, are provided to cut the sheet of fibers, and a further spray (4) cleans the wire cloth before the cylinder re-enters the vat. Valves may be provided to regulate independently the pressure under which the air and water are withdrawn. British Patent No. 272,770.

Alpina Nutens for Paper Making

THE dried fibrous stems of Alpina nutens, which contains a large amount of pithy matter, have the following composition: moisture 9.0 per cent, ash 6.25 per cent, cellulose 49.9 per cent, cellulose in moisture-free material 54.8 per cent, the average dimensions of the ultimate fibers being: length 2.62 millimeters, diameter 0.0162 millimeter. The character of the pulp, produced by digestion with caustic soda under different conditions is described, and it is concluded that the stems can be converted into paper of very satisfactory quality, the yield of pulp being good and the consumption of sodium hydroxide not excessive. Bulletin Imperial Institute, 1927, volume 25, pages 122-126.

Improvement in Fourdrinier Machine

A DOCTOR member is provided, which on breaking of the paper web, is automatically brought into engagement with a travelling member on which the paper web is supported, to prevent the broken web wrapping round such member. The device is illustrated as applied to the last drying cylinder (1) to operate on breakage of the web on its passage



to the calender rolls. The doctor (9) is pivotally mounted on a bracket (8) and is normally held out of engagement with the drying cylinder by springs (12). On breakage of the web (3) a pivoted feeler (4) falls and completes an electric circuit, energizing a solenoid (30). The core (29) is con-

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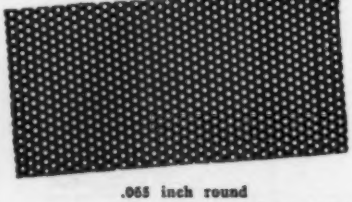
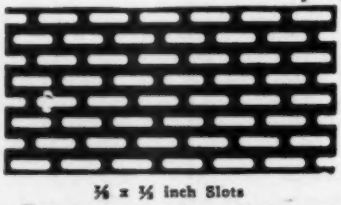
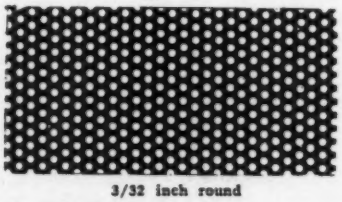


.065 inch round



⅜ x ⅛ inch Slots



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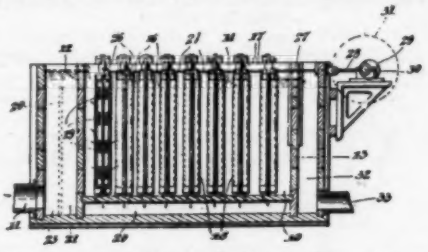
nected to a lever (24) which opens a valve (20), allowing air under pressure to enter a cylinder (15) and depress the piston (16), drawing down the arm (11) against the action of the springs (12) and bringing the doctor (9) into contact with the cylinder (1). The cylinder (15) is provided with a vent (39) to allow the escape of air as the piston descends, and a bleeding orifice (38) to allow the piston to be drawn up again by the spring (12) when the web is repaired and the electric circuit is broken. A hand operated valve (43) in a bye-pass (42) allows the device to be operated independently of the electric device. British Patent No. 272,116.

Pulp Screen

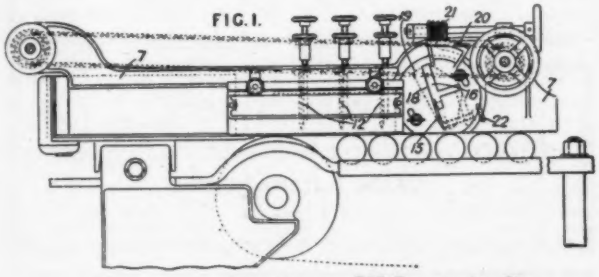
THE pulp screen, shown in the accompanying illsutration, comprises the tank (13) which is provided with an intake pipe (33) and a discharge pipe (11). A number of adjustable

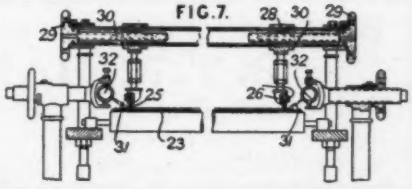


wiers (15) are arranged in the tank and a number of pivoted screening units are arranged intermediate of the wiers. United States Patent No. 1,639,797.

Regulating Thickness of Paper on Paper Machine

THE thickness of the paper is regulated by means of a lath (15), (see accompanying figure) placed behind the usual froth ledges (12) and mounted on a lath carrier (16)

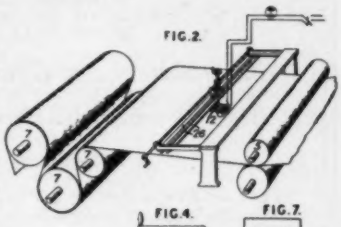


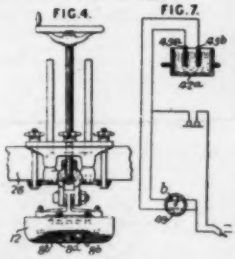


vertically adjustable by means of a screw spindle and fitted in recesses (18) in end plates (19) which are rotatable by means of a worm (21) and sector (20) in the side cheeks (7). Local adjustment throughout the length of the lath (15) is made by regulating screws (32). The usual rubber deckle belts are replaced by strips (25) (see figure 7) of yielding and resistant material such as felt, rubber or the like, held between metal plates (26) and adjustable transversely by nut elements (28), spindles (30) and handwheels (29). The strips (25) are set just out of contact with the wire cloth (23), and liquid, steam or gas jets (31) preferably set obliquely forward play on the gaps between the strips (25) and the wire cloth (23). The jet tubes (32) are adjustable vertically and horizontally. British Patent No. 266,670.

Indicating Apparatus on Paper Machines

THE humidity of the paper web at any suitable point in its passage through a papermaking machine is indicated by providing electric contacts adapted to engage the web, such contacts being mounted in spaced relation and insulated from each other and included in an electric circuit containing a galvanometer or like measuring instrument. As shown the device is applied to a fourdrinier machine for indicating the humidity of the web passing from the press rolls (5) to the wet drying rolls (7), and comprises a number of copper, etc., places (8^a) and (8^b) arranged within a block of insulating material (12), the plates being preferably connected electrically in two series with the plates of one series alternating with those of the other series.

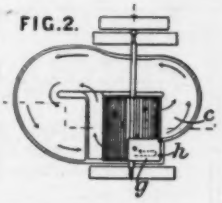




The block (12), which is mounted so as to have pivotal movement in the direction of the travel of the web, is supported upon guides (26), so as to be capable of lateral and vertical adjustment with respect to the web. A device for compensating for variation in the acidity of the stock is preferably provided, and may comprise a resistance consisting of plates (45^a) and (45^b) immersed in stock contained in a tank (42^a), such resistance being arranged in a branch circuit, and the branch circuit may, as shown in figure 7, include a coil (49) incorporated in the measuring instrument and wound in a direction opposite to that of the actuating coil (b) of the instrument. Alternatively a manually adjustable resistance may be provided, such resistance being arranged either in series with or parallel to the resistance of the web. British Patent No. 273,230.

Improvement in Beater

TO MAKE possible the use of a grinding cylinder having a width greater than the diameter and to overcome the difficulty caused by the greater difference between the outside and the inside travel of the stream of pulp and its consequent unequal pulping, the tail-race (c) is made two-thirds of the width of the grinding cylinder, as shown, and the hood is constructed as at (f) to direct the remaining one-third of the stream over the top of the cylinder and discharge it into the main stream at the head race end, which is widened for that purpose. A guide plate (g) pivoted at (h) and yieldingly held to the cylinder by springs (m) prevents the formation of eddies in the hood. British Patent No. 272,966.



Time Factor in Determining Pulp Properties

PROLONGED boiling of pulp results in decrease of its lignin content, suppression of the bromine number or chlorine factor, decrease in the quantity of active chlorine absorbed in bleaching and increase in the amount of fiber stained by Congo red. The copper number increases and correspondingly the resistance to baryta, which refers to the increase in the quantity of cellulose decomposition products, decreases. Decrease of the total sulphur dioxide content of the cooking liquor apparently produces an increase in the pentosan content. Fluctuations in the alpha cellulose content show no definite relation to the duration of the boiling. Zellstoff und Papier, 1927, 7, 235.

Recovering Pulp From Printed Waste Paper

PRINTED waste paper is treated with a solution of sodium phosphate (trisodium). The solution obtained in this manner is kept cool, and is then pulped, beaten, unknotted and washed in clear, fresh water. This treatment removes all the impurities from the pulp. U. S. Patent No. 1,640,612.

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New York, October 1, 1927.

ACTIVITY in the paper trade has increased very perceptibly since the Labor Day holiday. There is a better all around demand for paper; buyers are operating in the market with greater freedom and on a broader scale, and the situation in general has improved to a degree where paper manufacturers and merchants are busier than in some time and with prospects of a further expansion in business over the next several months.

Some branches of the trade are quite active. This is due in part to the season—this being the time of the year when demand for certain kinds of paper and board increases—and in part to the general improvement in consuming fields. There is no doubting that business generally is on the mend; that the wholesale and retail movement of merchandise is quickening; that merchants and distributors all over the country are buying in bigger volume and are replenishing depleted stocks, and that most manufacturing establishments are speeding up production to take care of the larger demands made upon them for their products. Fall business in a good many lines has opened up with a rush, and there are plenty of indications that between now and the end of the current year business is going to pass through a period of pronounced activity. It is but reasonable to believe that the paper industry is going to share in the increased trade activity; in fact, as stated above, demand for paper already is showing the effects of the fall stimulation of business generally as well as within the exclusive scope of the paper industry.

The situation is very healthy. There is no "wild" purchasing of paper or board. Consumers and jobbers and converters are placing orders for larger amounts of paper because their operations have expanded to a point where they need bigger supplies to serve their purposes. Paper being bought and shipped from mills today is moving almost directly into consumption. There is no stocking up of any consequence; consumers and distributors apparently are trying sincerely to estimate and anticipate their requirements and are buying from supply sources accordingly.

The usual mid-summer decline in paper production was recorded in July, when mills of the country produced a total of 513,459 net tons of paper and paper board of all kinds, showing a drop of 9 per cent as compared with 560,342 tons produced in the preceding month, according to the monthly statistical summary of the American Paper and Pulp Association and affiliated organizations. The July output also compared with 543,592 tons produced in May this year, 558,412 tons in April, 596,448 tons in March, 525,896 tons in February, and 515,603 tons in January. Mill stocks at the end of July aggregated 259,429 tons of all grades, contrasted with 263,088 tons at the end of the preceding month. Shipments from mills during July amounted to 518,824 tons, and thus exceeded the production by some 5,000 tons, compared with 549,517 tons shipped in June.

Production of newsprint on the North American Continent recorded a sharp increase in August as compared with the preceding month. According to figures compiled by the News Print Service Bureau, production in Canada during August amounted to 180,187 tons, and shipments from mills were 180,666 tons, while production in the United States was 127,129 tons and shipments 124,402 tons, making a combined total for the two countries of 307,316 tons produced and 305,068 tons shipped, compared with 281,493 tons produced in July. During August 19,152 tons of newsprint were made in Newfoundland and 1,337 tons in Mexico, so that the total North American output in that month amounted to 327,805 tons.

The Canadian mills produced 121,085 tons more of newsprint in the first eight months of 1927 than in 1926, which was an increase of 10 per cent. The United States output was 102,293 tons or 9 per cent less than in the first eight months of last year; that in Newfoundland 37,636 tons or 32 per cent more, and in Mexico 1,442 tons or 18 per cent more, making a total North American increase of 57,870 tons or 2 per cent. During August the Canadian mills operated at 81.6 per cent of their rated capacity and the United States mills at 82.1 per cent. Stocks of newsprint at Canadian mills totaled 31,743 tons at the end of August and at U. S. mills 30,335 tons, making a combined total of 62,078 tons which was equivalent to 4.5 days' average production.

Production of paper board in the United States in July reached a total of 189,193 net tons, contrasted with 214,096 tons produced in the preceding month and 206,235 tons in July, 1926, according to the monthly summary compiled and issued by the U. S. Department of Commerce. Board production in the first seven months of 1927 totaled 1,391,214 tons, compared with 1,463,420 tons produced in the corresponding period of 1926. Mills of the country secured new orders for board calling for a total of 211,875 tons in July, against 213,127 tons in June, and had unfilled orders for 115,597 tons at the end of July, compared with 95,347 tons a month previous. Shipments of board from mills aggregated 193,182 tons in July, against 211,220 tons in June, and stocks of board at mills at the end of July were 49,381 tons, contrasted with 52,690 tons at the end of June.

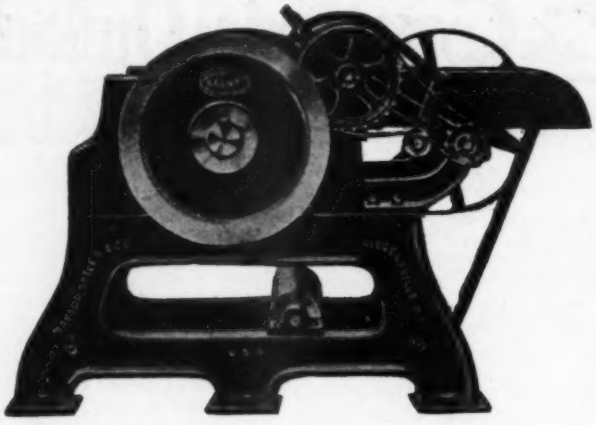
There was a slight increase in employment in the paper and pulp industry in July as compared with June, according to figures made public by the Bureau of Labor Statistics, Department of Labor, in Washington. Reports received by the Bureau from 216 paper and pulp plants gave their June employment at 56,011, increasing slightly in July to 56,090, an increase of 0.2 per cent. The payrolls in these identical plants, on the other hand, decreased from $1,468,144 in June to $1,441,251 in July, a decrease of 1.8 per cent.

It is very evident that consumption of newsprint is on the increase, and business in this class of paper has improved considerably. The market tone is firm, and mills are increasing their shipments to consuming centers. Book paper is in fairly active demand, with the market exhibiting gradual expansion. Quoted prices are steady, particularly those emanating from mills which sell the bulk of their output on contract, and which are in a position to demand firm prices at present. Wrapping is moving in consistently good tonnage and at maintained prices; the tendency in some cases is decidedly toward higher market levels, in fact. Tissue paper is in better call, and steady quotably, and the various specialties, including fancy papers for box coverings, paraffine, parchment, and converters' paper for cups, etc., are enjoying a fairly active demand and are holding firm in price.

The box board market has experienced during the last month the liveliest period it has witnessed in a long time. Consumers have bought board freely, and mills in nearly every case have been obliged to increase their production. Prices of plain boards have stiffened to where mills in the East now quote $52.50 a ton for news board and $50 for chip board delivered in New York City.

The regular fall meeting of the News Print Service Bureau will be held at the Hotel Commodore, New York, on Wednesday, October 19. Following the meeting a luncheon will be given at which business conditions and related topics will be the subjects of addresses by men of prominence in industry and finance.

Effective Sept. 29, price F wood rosin carload lots is $7.00 per 280 lbs. gross, f. o. b. southern plants.



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Whether alkalies form a minor or major part in your manufacturing processes, you will find it advantageous to specify Diamond Alkalies. Quality goes through and through from raw materials to finished product.

Their purity and uniformity are in great measure a guarantee of uniform results. Warehouse stocks strategically located assure an ample supply and emergency deliveries as your requirements demand.

There are Diamond Warehouse Stocks in your Vicinity

DIAMOND ALKALI COMPANY · PITTSBURGH, PA.

Papermaking Rags

There are signs that activity in papermaking rags is on the increase. In fact, it can be said there is better proof than signs that in some quarters the market for rags is exhibiting decidedly more life, and that prices are characterized by greater firmness than has been witnessed in considerable time. It would seem as if papermakers are purchasing rags in somewhat larger volume because they are actually in need of bigger supplies or else that they have used up the stocks which they had on hand and are now replenishing their holdings.

The increasing demand and price strength apply particularly to new cotton cuttings, which are used by fine paper mills and which have, until very recently, experienced a rather long-drawn-out period of market dullness during which paper manufacturers bought in a very sparse and spotty manner. However, demand for some grades of cuttings has quickened to a marked degree lately, and prices of some descriptions have moved to slightly higher levels under the stimulation of increasing call from consuming quarters and rather limited incoming supplies from producing sources. It is declared to be a fact that some kinds of cuttings are in small supply; that stocks in dealers' hands have been well liquidated, and that fresh supplies from clothing houses are being received in unusually small amounts. Moreover, it seems a coincidence that those grades in which paper mills are interested chiefly are the grades which dealers have difficulty buying in normal lots, which obviously leads to a firmer price undertone.

Fancy shirt cuttings are quoted firmly at 6 cents a pound f.o.b. dealers' shipping points, and it is said to be somewhat difficult to locate these rags at this, or higher, price levels. Dealers quote No. 1 white shirt cuttings at 12 cents and higher at shipping points, light silesias at 7.25 cents, black silesias at 5 cents, bleached canton flannels at 8.50 cents, and No. 1 washables at 4.50 cents. Cottonade cuttings have been in excellent demand and have readily brough 3.75 cents a pound at dealers' points, while khaki cuttings are scarce and are quoted firmly at 5.75 cents per pound for O. D. khaki and 5.25 cents for mixed khaki.

The market for roofing stock seems to have quieted following a spurt of activity early in September. Felt mills came in and placed orders for some fair-sized quantities of both domestic and foreign rags, but since have retired as buyers, and, with the consuming outlet narrowed, prices have showed a slight decline. The feature in the roofing stocks situation is the firmness of prices abroad. From all indications, mills in Europe are absorbing these rags freely and are granting prices relatively higher than those American manufacturers are satisfied to pay, with the result that exporters in Europe most often quote prices on rags to United States importers which are just as high as the figures felt mills are willing to give, which of course discourages the importers to bring in rags from Europe. There is no doubt that receipts from abroad into this country are falling off drastically, last-published statistics showing a sharp decline in imports this year compared with a year ago.

Dealers quote No. 1 domestic roofing stock or cloth strippings at 1.75 cents per pound f.o.b. shipping points, and No. 2 packing at 1.35 to 1.40 cents. Foreign dark colored cottons are reported available at 1.60 cents ex dock New York and other American Atlantic ports, and foreign linsey garments at 1.80 cents.

Old white rags are in routine demand principally, and prices show very little alteration. The same is true regarding thirds and blues. No. 1 repacked whites are reported selling around 6.25 cents a pound at shipping points, and No. 2 repacked whites at 3 cents. Repacked thirds and blues are reported available at 2 cents upward a pound, depending on the quality of packing, and rough blues at 1.55 to 1.75 cents.

Average quotations f.o.b. shipping points and ex dock New York are as follows:

New Stock—	New York and Chicago
White shirt cuttings, No. 1	12.00-12.25
White shirt cuttings, No. 2	7.00- 8.00
Fancy shirt cuttings	6.00- 6.25
Washables, No. 1	4.50- 4.75
Unbleached muslin	9.50- 9.75
White lawns	8.50- 8.75
Overall cuttings, blue	6.75- 7.00
Black silesias	4.75- 5.00
Light flannelettes	8.50- 8.75
Canton flannels, bleached	8.25- 8.50
Canton flannels, unbleached	7.50- 7.75
Shoe cuttings, bleached	8.50- 8.75
Shoe cuttings, unbleached	6.75- 7.00
Light silesias	7.25- 7.50
O. D. khaki cuttings	5.75- 6.00
Mixed khaki cuttings	5.25- 5.50
Corduroy cuttings	3.00- 3.25
Cottonade cuttings	3.75- 4.00
Linens, No. 1 white, foreign	13.00-14.00
Light prints, foreign	2.75- 3.00
Old Stock—	
Whites, No. 1 repacked	6.00- 6.50
Whites, No. 2 repacked	2.75- 3.25
Whites, house soiled	2.00- 2.25
Whites, street soiled	1.85- 2.00
Lace curtains	5.75- 6.00
Thirds and blues, rough	1.55- 1.75
Thirds and blues, repacked	2.00- 2.30
Black Stockings	3.75- 4.00
Cotton canvas, No. 1	4.75- 5.00
White cotton batting	3.00- 3.25
Roofing, No. 1 (cloth strippings)	1.70- 1.75
Roofing, No. 2	1.35- 1.40
Linsey, garments, foreign	1.75- 1.80
Dark colored cottons, foreign	1.55- 1.60
Blue linens, foreign	3.75- 4.00
Gray linens, foreign	4.00- 4.25
White linens, foreign	7.50- 8.00
Light prints, extra foreign	1.75- 2.00

Rope and Bagging

A steady market exists for old rope. Reports state that paper manufacturers are absorbing supplies of old manila rope in a consistent manner and that they are granting firm prices. There is no exciting buying on the part of consumers, and prices are recording little fluctuation, but a steady movement of supplies is noted and prices exhibit a good deal of stability. Domestic No. 1 old manila rope is selling at 4 cents a pound to slightly higher, mills in some cases paying an eighth to a quarter of a cent per pound more, while No. 1 foreign rope is fetching 3.50 to 3.75 cents a pound ex dock New York. Mixed strings have been in excellent demand and prices are firm at around 1.15 cents a pound at dealers' shipping points.

Old bagging is in fair demand although papermakers are purchasing mainly against actual and direct needs, and the volume of mill orders is relatively small. No. 1 scrap burlap is selling at 1.60 to 1.75 cents a pound f.o.b. shipping points, and roofing bagging at 1.20 to 1.25 cents. Gunny bagging is holding its own in price at around 1.90 cents per pound at shipping points.

A MARK OF RESPONSIBILITY ON PRODUCTS OF STANDARD QUALITY

ALUMINUM SULPHATE

The General Chemical Company manufactures to standards of purity and uniformity nowhere excelled—standards which are identical in each of the Company's many plants. Wherever you are the chemicals you receive are of standardized General Chemical quality.

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STANDARD IN SODA SINCE 1881

Quality and Service Guaranteed by the Largest Source of Supply

Soda Ash
Caustic Soda

Over 75 stock distributing points assure prompt shipment with minimum transportation charges.

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Alkalies and Chemical Products
Manufactured by The Solvay Process Company

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GOOD RAGS FOR PAPER MILLS NEW CUTTINGS

The Leshner Paper Stock Co.

INCORPORATED

Hamilton, Ohio

Branch—Cleveland, Ohio

RUSS GELATIN CO.

WORKS—WESTFIELD, MASS.

MANUFACTURERS OF

GELATIN and GLUE

ANIMAL SIZING GLUE STOCK

LARGEST SPECIALISTS IN AMERICA ON
FINE WRITING PAPER SIZING

E. F. RUSS COMPANY 287 Atlantic Avenue BOSTON, U. S. A.

DIGESTERS

forge and hammer welded

Blaw-Knox Co., Farmers Bank Bldg. Pittsburgh, Pa.

BLAW-KNOX

F.o.b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	1.85-2.00
Gunny, No. 1 foreign	1.80-2.00
Scrap bagging, No. 1	1.60-1.75
Roofing bagging	1.20-1.30
Wool tares, heavy	2.25-2.50
Wool tares, light	2.00-2.25
Manila rope, No. 1 foreign	3.50-3.75
Manila rope, No. 1 domestic	4.00-4.25
Sisal strings	1.75-2.00
Mixed strings	1.10-1.25

Old Paper

The old paper market is exhibiting more stability than in a long time, and business in the commodity is fairly sizable. Market conditions are much more to the liking of those on the selling side of the trade, since prices have stiffened to where there is at least a profit in waste paper, and as a result of the more favorable position of prices, there are indications that collections are on the rise and more supply is being made available for board and paper mills.

Reports state that prices in the East have moved off a bit from the top levels reached during the recent sharp advancement of the market, yet prices in New York City and elsewhere continue well above the low levels ruling up until a few weeks ago. The trade now seems chiefly concerned with the maintenance of prices on prevailing levels, it being the dealers' contention that if market values are supported at current levels that ample supply will be forthcoming to satisfy the requirements of consumers.

Shavings are quoted at 3.25 cents and higher per pound f.o.b. shipping points for No. 1 hard white, and 2.85 to 3.15 cents for soft white shavings, depending on the quality of packing. Heavy books continue to sell at 1.25 to 1.35 cents a pound at dealers' shipping points, old No. 1 kraft paper at 2.10 cents, ledger stock at 1.50 to 1.75 cents, and white blank news at 1.85 cents. Folded newspapers are bringing 70 to 80 cents a hundred pounds at shipping points, and No. 1 mixed paper 60 to 75 cents.

The following quotations are those named by dealers f.o.b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	3.10-3.35
Hard white shavings, No. 2	2.90-3.15
Soft white shavings	2.85-3.15
Colored shavings	1.25-1.50
Heavy book, No. 1	1.25-1.35
Crumpled book, No. 1	1.00-1.10
Ledger stock	1.50-1.75
Kraft, No. 1	2.00-2.15
New kraft cuttings	2.60-2.80
Manilas, No. 1	.90-1.00
White blank news	1.75-1.90
Overissue news, No. 1	.85- .95
Folded news	.70- .80
Sulphite mill wrappings	.80- .90
Old corrugated boxes	.75- .80
New corrugated box cuttings	.90-1.00
Mixed paper, No. 1	.60- .75
Common paper	.45- .50

Mechanical Pulp

The market for mechanical wood pulp displays very little or no improvement. Demand continues at a low ebb, and there is still pressure brought to bear by some producers to sell pulp, and under the circumstances prices are marked by easiness and appear to be gradually seeking cheaper levels. The whole gist of the situation is that production of ground wood is, or at least has been, so well beyond the consuming requirements that buyers have matters all their own way, and prices have receded until now they unquestionably are below the cost of production and a good many grinders are curtailing their output.

Prime spruce ground wood has been reported bought at as

GDC

If you plan to take up
the
Manufacture of

New Paper Specialties

or if you are confronted with color problems of any kind, such as fastness to light, fastness to alkali, two sidedness, please consult our newly equipped laboratories and our experienced staff.

230 Fifth Avenue
NEW YORK

GENERAL DYESTUFF CORPORATION

PAPER STOCK FOR SALE

We have considerable stock to offer at reasonable and sensible figures

The Globe Scrap Paper Co.
Columbus, Ohio

Cheney Pulp and Paper Co.
Franklin, Ohio
Manufacturers of All Grades
Rag Pulp and Jute Pulp for Paper Mills
SAMPLES AND PRICES SUBMITTED UPON REQUEST

POWER PLANT PIPING
We are fully equipped to supply fabricated materials and to install complete piping systems for Electric Power Stations, Blast Furnaces, Steel Mills, Coke Works, Paper Mills and Industrial Plants of every description—backed by an experience of almost a quarter century.
Pittsburgh Piping & Equipment Co.
PITTSBURGH, PA.

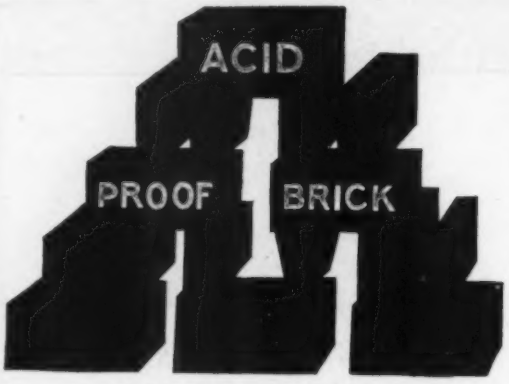

FIGURE 135
ACID PROOF VITRIFIED BRICK

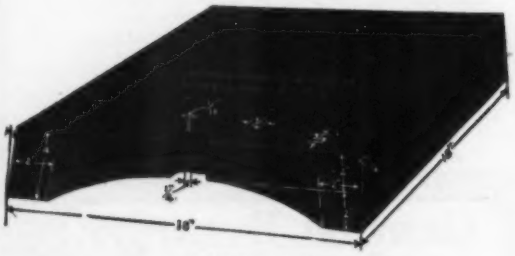

FIGURE 140-B
ACID PROOF DRAINER OR BLOW PIT TILE

WE have been manufacturing Acid Proof Chemical Stoneware apparatus and equipment for over twenty years and are in a position to furnish any plant equipment that might be needed in GUARANTEED KNIGHT-WARE.

Pulp and Paper executives will be particularly interested in our Acid Proof Brick and Drainer Tile, also in our Acid Proof Partition Ring Tower Packings.

Standard size: 8" x 4" x 2½". Carried in stock.

Weight, about 5¾ pounds each.

Minimum carload, 10,000 brick.

Packed in barrels for L. C. L. shipments.

This is a molded, not sawed, brick, repressed under two tons pressure. Is made of the same clays and fired in the same kilns and at the same time as our chemical stoneware apparatus. They have a tough and impervious body, are salt glazed, and are ACID PROOF THROUGHOUT THE ENTIRE BODY.

Acid Proof Drainer or Blow Pit Tile Figure 140-B is designed primarily for use as a false bottom in blow pits in pulp mills, but finds many other uses where a perforated false bottom is required. The holes can be made of any diameter and set as close together as wanted, and of either the straight or taper type (self cleaning non-clogging). The arch construction gives this type of perforated tile greater strength than the flat type shown under No. 138. Advise your requirements as to design, size and number and bore and spacing of holes.

Fully illustrated and descriptive catalog upon request.

Maurice A. Knight

AKRON, OHIO

ROSIN SUPERIOR SIZE

SUPERIOR CHEMICALS

TRADE MARK

CHEMICALS AND SERVICE

Twenty-two SUPERIOR Plants

The Most Extensive Organization of Its Kind in the World

Producing, Distributing and Servicing Chemical Products for the Pulp, Paper and Coating Trades

"There Is a SUPERIOR Plant Near You"

PRODUCTS

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FELT SOAPS

SOAP POWDER

VEGETABLE TALLOW

PRODUCTS

SATIN WHITE

ENGLISH AND DOMESTIC CLAYS

CASEIN

CASEIN SOLVENTS

SOFTENERS

DRY AND PULP COLORS

TURKEY RED OIL

Paper Makers Chemical Co., Easton, Pa., Holyoke, Mass.
Western Paper Makers Chemical Co., Kalamazoo, Mich., Pensacola. Fla., Jacksonville, Fla., Savannah, Ga., Comstock, Mich.
C. K. Williams & Company, Easton, Pa., Emeryvilla, Cal., Malaga, Spain.
Georgia-Louisiana Company, East Point, Ga., Marrero, La.
Superior Pine Products Company, Fargo, Ga., Tarver, Ga.
Empire Size & Chemical Co., Albany, N. Y.
Adirondack Mineral Co., Carthage, N. Y.
Superior Sizing Company, Lockport, N. Y.
Paper Makers Importing Co., Easton, Pa., St. Austell, Cornwall, Eng.
Vera Chemical Co. of Canada, Ltd., Freeman, Ontario
Vera Chemical Corporation, Stoneham, Mass.
Vera Chemical Company, North Milwaukee, Wis.
John Regnier & Son Company, Boston, Mass.
George S. Mepham & Company, East St. Louis, Ill.
Pochins & Paper Makers Chemicals, Ltd., Erith, Kent and Manchester, Eng.

low as $20 per ton f.o.b. pulp mills in Canada although the usual quotation named by producers is around $22 or $23 a ton. Domestic prices are strictly nominal at about $26 a ton f.o.b. pulp plants. Scandinavian ground wood is quoted at around $29 per short ton for dry and $27 for wet pulp ex dock American Atlantic ports.

Production of ground wood in the United States in July amounted to 70,409 net tons, showing a considerable decrease from the 84,248 tons produced in the preceding month, according to the American Paper and Pulp Association. Mill stocks at the end of July totaled 142,217 tons, contrasted with 155,107 tons a month previous.

Pulpwood

There is not a great deal doing in the pulpwood market currently as this is the season when business is held in abeyance. The market undertone remains steady, however, and quoted prices are reported firm.

Exports of pulpwood from Canada in the first eight months of this year amounted to 1,219,040 cords, valued at $12,213,614, showing a considerable increase over the 976,345 cords of a value of $9,644,474 exported in the similar period last year. Practically all of this pulpwood came to the United States.

Chemical Pulp

Reports state that domestic manufacturers of wood pulp are managing to keep passably well occupied, and that, if anything, their market has shown some little expansion recently with the advent of consumers into the market to acquire needed fall and winter supplies. Prices of domestic pulps seem to be holding quite steady. There is a tendency noted in some cases toward fluctuation, but no important changes have occurred, and producers and consumers alike appear well satisfied to permit market values to remain on a more or less stabilized level.

Bleached sulphite is quoted at 4 cents a pound upwards f.o.b. pulp mills, depending on the quality of the pulp involved, while easy bleaching sulphite is quoted at around 3 cents per pound at shipping points. No. 1 strong unbleached sulphite of news grade is steady quotably at 2.50 cents and higher, while No. 1 book sulphite continues to bring 2.75 to 3 cents a pound f.o.b. pulp mills. Bleached soda pulp is quoted at 3.25 to 3.50 cents f.o.b. producing plants.

During July mills in the United States produced a total of 99,494 net tons of chemical wood pulp of all grades, compared with 107,080 tons produced in the preceding month, and had stocks aggregating 20,139 tons of all grades at the end of July, against 19,657 tons a month before, according to the monthly summary of the American Paper and Pulp Association.

Quotations f.o.b. pulp mills are as follows:

Bleached sulphite	4.00-4.75
Easy bleaching sulphite	2.90-3.15
Unbleached sulphite, No. 1 strong (news grade)	2.50-2.75
Unbleached sulphite, No. 1 book	2.75-3.00
Soda pulp, bleached	3.25-3.50
Mitscherlich, unbleached	3.00-3.25
Kraft, No. 1	2.75-3.00
Screenings, refined	1.40-1.60

Chemicals

Prices of casein are firm and there seems to be an upward tendency in effect. Dealers and importers generally quote 17 to 18 cents per pound, duty paid on the imported product, and in some instances a bit higher than 18 cents is asked. Caustic soda is moving steadily into consumption and prices are maintained fully at 3 to 3.20 cents a pound f.o.b. works for the solid product in large drums. Bleaching powder is quoted firmly at 2 to 2.40 cents a pound at works, and soda ash is unchanged on a quotable basis of 1.32½ cents a pound at works for the 50 per cent light product packed in bags.

Average quotations are as follows:

Alum, lump ammonia	3.50 - 3.75
Alum, lump starch	3.75 - 4.00
Blanc fixe, powder	4.00 - 4.25

Starch

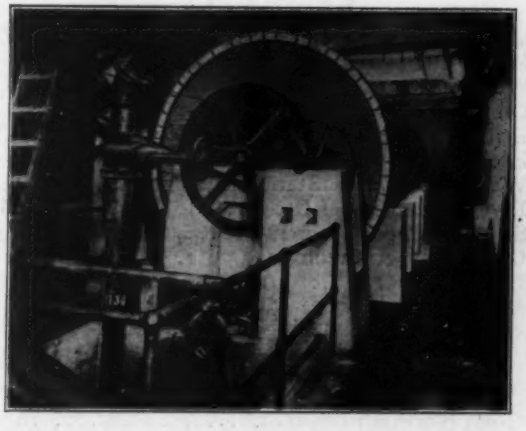
ECONOMY can never be mistaken for cheapness. In the matter of sizing material, starch is cheaper than an all-glue size, yet the results are identical—in fact, the paper made with starch sizing is stronger.

FOX HEAD NIAGARA
SPECIAL PAPER

Our experts can show you how these starches can be used advantageously in your mill. They will gladly call on request.

Corn Products Refining Company
17 Battery Place New York

Starch



Paper Mill Tanks

The above installation in a well-known Ohio paper mill is only one of Hauser-Stander's successful installations.

Hauser-Stander has been building tanks for over fifty years and has particular knowledge of paper mill men's requirements.

The Hauser-Stander Tank Co.
CINCINNATI, OHIO

Uncle Jake says—

"The employee who insists that he is indispensable to the business is the first one to be laid off when the dull season arrives."

We do not feel that we are indispensable to your business, but we do feel that our

KVP BOND

is a wonderful aid to any business using print or writing papers. The cut, the written or printed words, stand out on it so clearly as to give distinction to the message.

KALAMAZOO VEGETABLE PARCHMENT CO. KALAMAZOO, MICH.

WE WILL BUY

Mead Pulp & Paper Company 5s	OW
Fort William Paper 6s, 1946	98
Westfield & River Paper 7s	89
Donnacona Paper 6s, 1940	101
British Columbia Pulp & Paper 6s, 1950	83
Escanaba Paper 6s, 1929	98
Western Tablet & Stationary 6s, 1941	97½
River Raisen Paper Co. 6s, 1931	98½
St. Anne Paper 6½s, 1946	98
Oxford Paper Common	165
Hoberg Paper & Fibre 7s, 1937	94
Electro Bleaching Gas Products	82
North American Timber Holding Pfd. 1911 issue	20

WE WILL SELL

Great Northern Paper	73
Oswegatchie Paper Co. 6s	bid wanted
Marinette & Menominee Paper Co. 7½s	104½
Long Bell Lumber 6s, 1931	92
Breece Gas Lumber Co. 6½s, 1936	98
Donnacona Paper Common	75
New England Lime Pfd.	98
Cady Lumber 6½s, 1942	92
Chillicothe Paper Co. Pfd.	105

H. D. KNOX & CO.

44 Broad St., N. Y. 27 State St., Boston

Inquiries invited on all Paper Pulp Lumber Securities

L. V. ESTES INCORPORATED

Industrial Engineers

Specializing in

LABOR COST REDUCTION AND MATERIAL HANDLING

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Hood Systems and Heat Economizers, Heating, Ventilating, Air Conditioning and Vapor Absorption Equipment.

Descriptive Bulletins on Request

DRYING SYSTEMS INC.
1800 FOSTER AVE.
CHICAGO, U.S.A.

NEW YORK · DETROIT · ATLANTA · CLEVELAND · SAN FRANCISCO

New Papers

Writing—	
White rag	15-40
White sulphite	9-30
Colored rag	15-40
Colored sulphite	8-30
Ledger—	
White rag	16-40
White sulphite	9-30
Colored sulphite	8-30
Colored rag	15-40
Bonds—	
White rag	16-40
White sulphite	7-30
Colored sulphite	7-30
Colored rag	15-40
Book—	
No. 1 S. & S. C.	6.40- 8.00
Machine finished	6.25- 8.00
English finished	6.25- 8.00
Coated and enameled	8.00-14.00
Lithograph, M. F.	8.00-15.00
Newsprint—	
Rolls, contract	3.25-.....
Rolls, transient	3.50-.....
Sheets	3.65- 3.80
Side runs	3.00- 3.25
Cover Stock—	
Coated, both sides	10.25
Coated, one side	10.15
Tissue—	
No. 1 white, 20x30	.75- .85
No. 2 white, 24x36	.70- .80
No. 1 manila, 24x36	.70- .80
Kraft	.90- 1.00
Wrapping—	
No. 1 kraft	6.00- 6.50
No. 2 kraft	5.25- 5.50
Southern kraft	4.75- 5.00
Boards—	**New York and Chicago**
Solid news	55.00-60.00
Straw	52.50-57.50
Plain chip	47.50-50.00
White coated chip	60.00-65.00
Manila coated chip	55.00-60.00
Binder's board	70.00-75.00

Chemicals

(*Continued from page 1229*)

Bleaching powder	2.00 - 2.40
Brimstone (long ton, at mine)	18.00 -19.00
Casein (duty paid)	17.00 -18.25
Caustic soda, spot delivery	3.00 - 3.20
China clay, domestic washed	8.00 -10.00
China clay, foreign	14.00 -20.00
Rosin, Grade E	10.10 -10.15
Satin white	2.00 - 2.25
Soda ash, 50 per cent light (bags)	1.32½-.....
Starch, papermakers', in bags	3.07 -.....
Talc (ton)	16.00 -18.00

The Bailey Meter Co., Cleveland, Ohio, recently moved to its new quarters at 1058 Ivanhoe Road where approximately three times as much floor space is available as exists in the old plant on East 46th Street.

Market Quotations

Issued by H. D. Knox & Co., 44 Broad St., New York

The quotations mentioned below are more or less nominal in some cases owing to the inactivity of the securities, but we invite inquiries on these and other allied industries' securities when we will endeavor to furnish actual markets.

BONDS

	Bid	Asked
Abitibi Fibre Co. 6s, 1947	97	99
Abitibi Power & Paper Co. 6s, 1940	104½	105½
Abitibi Power & Paper Co. 8s, 1930	107	
Abitibi Power & Paper Co. 6s, 1930	100⅝	101½
Abitibi Power & Paper Co. 6s, 1950	99¾	100½
Advance Bag & Paper Co. 7s, 1943	105	107
A. P. W. Pulp & Paper 7s, 1945	101	103
American Sales Book Co. 6s, 1939	102	
American Writing Paper Co. 6s, 1947	93	
American Writing Paper Co. 6s, 1939	80½	
American Book Co. 6s, 1928	100	101
Beaver Products 7½s, 1942	109	
Bedford Pulp & Paper 6½s, 1942	98	
Brown Paper Mills Co. 6s, 1935-41		100
British Columbia Pulp & Paper 6s, 1940	87	91
British Columbia Pulp & Paper 6s, 1950	83	
Belgo Canadian Paper Co. 6s, 1942	101¼	103
Bryant Paper Co. 6s, 1942	101	103
Brown Co. 5½s, 1946	100	
Brompton Pulp & Paper Co. 6s, 1942	100	102
Brompton Pulp & Paper Co. 6s, 1946	99	101
Canadian Paper Co. 6s, 1946	98	
Canadian Paperboard Co. 7s, 1937	98½	101
Cape Breton Pulp & Paper 6s, 1932	101	103
Celotex Co. 6½s, 1939	100½	102
Central Paper Co. 6½s, 1941	84	85½
Central Paper Co. 6½s, 1930	90	
Central Paper Co. 7s, 1932	86	87
Celotex Co. 6s, 1929	101½	103½
Celotex Co. 6s, 1936	97¾	
Champion Fibre Co. 6s, 1941	100¾	101¾
Champion Paper Co. 6s, 1935	95	97
Champion Coated Paper Co. 6s	99½	
Container Corp. of America 6s, 1936	98	
Continental Paper Products 6½s, 1942	89	92
Continental Paper & Bag Co. 6½s, 1944	79½	
Crown Willamette Paper Co. 6s	101½	
Dells Paper & Pulp Co. 6s	95	
Donnacona Paper Co. 6s, 1940	101	102
Eastern Manufacturing Co. 7s, 1938	90	92
Eddy Paper Co. 7½s, 1931	103½	
Escanaba Paper Co. 6s, 1939	94	96
Filer Fibre Co. 7s	94	98
Fort Orange Paper Co. 7s, 1942	98	100
Fort William Paper Co. 6s, 1946	98	100
Fort William Paper Co. 6s, 1931	100	
Gair (Robt.) 5½s, 1942	96¾	
Gilbert Paper Co. 6½s	90	
Hartje Paper Co. 6s	1½	
Hammermill Paper Co. 6s, 1929	100	102
Hoberg Paper & Fibre Co. 7s, 1937	94	96
Howard Smith Paper Co. 7s, 1941	104	105
Industrial Fibre Co. 8s	93	
International Paper Co. 6s, 1941	106	
Itasca Paper Co. 6s	97	
Itasco Paper & Prairie River 5½s	96	
Kalamazoo Vegetable & Parchment 6s, 1938	99	
Kieckhefer Container 5½s, 1928-37		99½
Lake St. John Power & Paper 6½s, 1942 (with bonus)	95	98
Lake Superior Paper Co. 6s, 1941	104	
Marathon Paper Mills 5½s	100	
Manitoba Paper Co. 6½s	98	99½
Marinette & Menominee Paper Co. 7½s, 1936	103	104½
Mead Pulp & Paper Co. 5s	93	96
Menasha Printing & Carton 6½s, 1939	100	
Mengel Co. 7s, 1934	103	
Minnesota & Ontario Paper Co. 6s, 1931	96	98
Minnesota & Ontario Paper Co. 6s, 1950	95	98
Minnesota & Ontario Paper Co. 6s, 1930-5	95	98
Minnesota & Ontario Paper Co. 6s, 1948	95¾	99¼
Michoacan Pulp & Paper Co. 6s, 1945	95	
Michoacan Pulp & Paper Co. 7s, 1929	96	
Monroe Paper Products 7½s, 1932	97	
Munising Paper Co. 6s	96½	100
Mekoosa Edwards 6s	96½	100
Ontario Paper & Pulp Co. 6s, 1931	108	110
Orono Pulp & Paper Co. 6s	98	
Oswego Falls Paper Co. 6s, 1941	99	102
Oswegatchie Paper Co. 6s		BW
Oxford Paper Co. 6s, 1947	102	104
Oxford Miami Paper Co. 6s, 1947	98	102

(*Continued on page 1239*)

BATHURST LUMBER COMPANY, LIMITED

PRICE & PIERCE, LTD.
17 East 42nd Street, NEW YORK CITY

ARE NOW THE

SELLING AGENTS
for Bathurst Pulp in the United States

Unbleached Sulphite 50 tons daily
Kraft Pulp 50 tons daily

Our pulp is made from Canadian Spruce
We ship in sheets, baled

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The B Q Inc.

QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

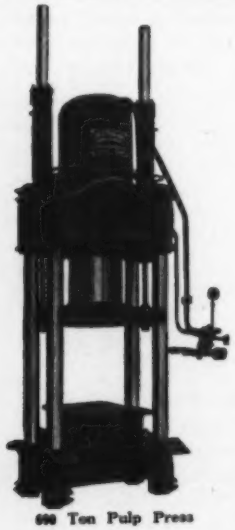
"BAMBLE"
Extra Strong Kraft

Fresh Monthly Shipments—No Closed Winter Season

The Borregaard Company
Incorporated
200 FIFTH AVENUE NEW YORK, N. Y.

SOUTHWARK

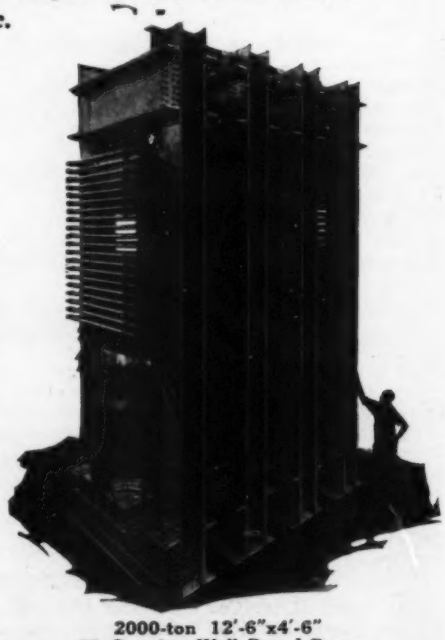
Hydraulic Equipment for Pulp and Paper Mills, Wall Board Plants, Etc.



600 Ton Pulp Press

PULP PRESSES
BALING PRESSES
WALL BOARD PRESSES
PULP TRUCKS
HYDRAULIC PUMPS
ACCUMULATORS
VALVES, FITTINGS, ETC.

Southwark Hydraulic Equipment is the choice of the largest and best known Pulp and Paper Mills throughout the country. They find Southwark products give the most efficient service under exacting conditions. Write for Bulletin No. 14.



2000-ton 12'-6"x4'-6"
20 Opening Wall Board Press

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PHILADELPHIA, PA.

CHICAGO
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EXPORTS

Exports of paper from the United States during July last showed a little decline in point of value as compared with shipments in the preceding month, and also were of less value as contrasted with July last year. According to official statistics compiled and issued by the U. S. Department of Commerce in Washington, the total exports of paper of all kinds from this country in July were valued at $2,200,364, compared with exports of a value of $2,537,484 in June this year, and $2,267,598 in July last year.

Exports of newsprint recorded a sharp decrease in July, amounting to 1,966,603 pounds, valued at $92,691, contrasted with 2,238,471 pounds of a value of $112,700 exported in June last, and 3,801,308 pounds of a value of $181,516 exported in July last year. Exports of book paper, not coated, on the other hand, showed a gain over last year, totaling 1,694,424 pounds of a value of $139,629, against 1,279,219 pounds of a value of $123,817 exported in July, 1926.

Wrapping paper exports from the United States in July amounted to 2,258,126 pounds, valued at $166,673, compared with 2,592,852 pounds of a value of $168,939 exported in the same month of last year. Box board exports fell from 4,401,738 pounds, valued at $114,404, in July, 1926, to 2,809,882 pounds of a value of $85,771 in July this year. Writing paper exports in July were valued at $154,114 in July, 1927, against $174,860 in the same month a year ago.

Total exports of paper of all kinds from the United States in the first seven months of this year were valued at $16,067,345, showing a fair gain over the shipments aggregating in value $15,715,751 in the same period of 1926.

IMPORTS

Wood Pulp

Quoted prices of imported wood pulp exhibit little change of consequence, and the market seems to be proceeding along a fairly even keel. There is not a great deal of demand emanating from paper and board mills, yet signs are enough buying is being engaged in by some consumers to lend support to market values, particularly as regards those brands of pulp which are well known in this country and which American papermakers are accustomed to using. In fact, it is reported that such grades of pulp are well sold up, not alone for the balance of this year but also for first open water shipment next spring, and this helps to sustain prices. On the other hand, there are brands of pulp which are not so well known here that are offered at prices representing a considerable concession from those quoted on desirable grades, and buyers are said to be more or less ignoring them.

Pulp consumers appear divided in buying policy at present. Some have contracted for supplies well ahead, having covered their requirements over the winter and into next spring, and now are holding rather aloof as concerns additional purchases. Others are refusing to anticipate and are ordering supplies as their needs develop, evidently feeling that they will be occasioned no difficulty getting all the pulp wanted at the time they may require it. This obviously makes for a somewhat spotty demand, yet it is stated that current business is of fair dimensions and that, if anything, demand has shown some little expansion recently or since paper mills commenced to feel the usual fall stimulation of business.

Importers and dealers express the opinion that pulp prices are resting on the bottom. They point to the fact that market levels have not changed to any extent in the last few weeks, and put much emphasis on the low range of prices, claiming that prevailing market values are lower than they have been at any time since before the war and that in numerous instances they are actually under the cost of production. This, they contend, cannot last indefinitely, and the opinion is that some strengthening of prices likely will be witnessed during the coming winter.

Importations of wood pulp into the United States increased quite sharply during July compared with the several previous months. According to official statistics issued by the Department of Commerce in Washington, imports of chemical pulp of all grades in July amounted to 105,148 long tons, which constituted the largest tonnage imported in any month this year up to July with the single exception of January when imports reached 137,607 tons, and compared with 98,199 tons in June, 104,444 tons in May, 73,763 tons in April, 86,731 tons in March, and 80,114 tons in February. During the first seven months of 1927 chemical pulp imports totaled 686,006 tons, giving a monthly average of 98,000 tons, contrasted with a monthly average of 102,086 tons in the corresponding period of 1926. Ground wood imports in July were 11,914 tons, making a total for the first seven months of the current year of 110,839 tons, or a monthly average of 15,834 tons, against an average of 19,821 tons imported in the same period a year ago.

Strong unbleached sulphite of prime quality is quoted at 2.50 cents per pound ex dock New York and other American Atlantic ports. Some of the better grades of strong sulphite range in price up to 2.75 cents and higher, while easy bleaching of prime quality is quoted around 2.90 cents, half-prime sulphite at 2.35 to 2.40 cents, and No. 2 sulphite at 2.30 cents. Prime bleached sulphite is on a quotational range of 3.50 to 4 cents, depending on grade, while standard Swedish prime kraft pulp is quoted at 2.70 cents ex dock New York. Prime ground wood is quoted at $28 to $30 a ton on the dock at New York for dry and $26 to $28 for moist pulp.

Current market quotations ex dock New York and receipts at the port of New York during September follow:

Bleached sulphite, No. 1	3.50- 4.00
Unbleached sulphite, strong No. 1	2.50- 2.75
Unbleached sulphite, No. 2	2.35- 2.50
Easy bleaching sulphite	2.80- 3.00
Mitscherlich unbleached, genuine	2.90- 3.15
Mitscherlich unbleached, ordinary	2.50- 2.70
Kraft, standard Swedish	2.65- 2.90
Ground wood, per ton (dry)	28.00-30.00

Bulkley, Dunton & Co., 99 bls. from Hamburg, 850 Rotterdam and 3,500 Gothanburg; William Hartmann & Co., 125 bls. from Hamburg; E. J. Keller Co., 347 bls. from Hamburg; Atterbury Bros., 300 bls. from Stockholm, 250 Gothenburg and 1,000 Oslo; Buck, Kiaer & Co., 2,400 bls. from Stockholm, 200 Gothenburg, 2,250 Greaker and 400 Oslo; Parsons & Whittemore, 167 bls. from Kotka; M. Gottesman & Co., 1,970 bls. from Rotterdam; Johanesen, Wales & Sparre, 2,286 bls. from Gothenburg and 1,950 Hernosand; J. Andersen & Co., 125 bls. from Gothenburg, 840 Greaker and 526 Hamburg; E. M. Sergeant Co., 1,995 bls. from Gothenburg and 650 Oslo; Price & Pierce, 950 bls. from Gothenburg; Brown Bros. & Co., 5,000 bls. from Gothenburg; Pagel, Horton & Co., 5,500 bls. from Gothenburg; Castle & Overton, 1,081 bls. from Bremen and 1,160 Rotterdam; Waterfalls Paper Mills, 1,800 bls. from Oslo; Chemical National Bank, 600 bls. from Oslo; Daniel M. Hicks, Inc., 125 bls. from Hamburg; F. R. Eaton, 9,002 bls. ground wood from Liverpool, N. S.; William Hughes & Co., 5,238 tons from Liverpool, N. S.; Order, 4,443 bls. from Kotka. 1,250 Norrkoping, 772 Raumo, 1,270 Helsingfors. 2,800 Oslo, 1,830 Bremen, 1,461 Wiborg and 2,216 tons of ground wood from Sheet Harbor.

Paper Stock

Reflecting both the comparatively limited demand from

J. ANDERSEN & CO.
21 East 40th Street New York City

Importers of Chemical Pulps
BLEACHED AND UNBLEACHED

Agents for Kellner Partington Paper Pulp Co., Ltd.
Sarpsborg, Norway; Forshaga, and Edsvalla, Sweden

The Pulp and Paper Trading Co.
21 East 40th Street New York City
Dealers in
Domestic Chemical and Mechanical Pulps and Paper
AGENTS FOR
J. & J. ROGERS COMPANY, Ausable Forks, N. Y.
E. B. EDDY COMPANY, LTD., Hull, Canada
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Dealers in Wayagamack Kraft Pulp
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EASTERN AGENTS of Sulphite Pulp
Made by Port Huron Sulphite & Paper Co., Port Huron, Mich.

Sulphur
A FIRST REQUISITE
IN
Paper Making
Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%
TEXAS GULF SULPHUR CO.
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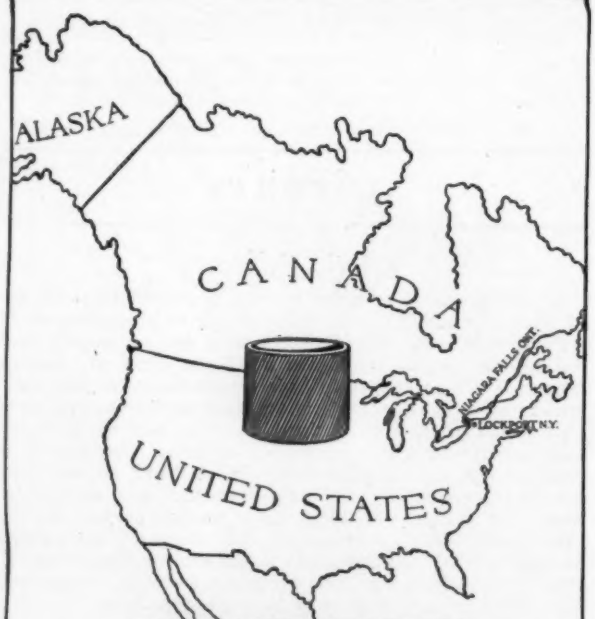
Mine Gulf, Matagorda County, Texas

The survival of the fittest
The easiest way to survive competition is to reduce the cost of production.
Our equipment will help you to do this:
Jenssen Acid Towers
Jenssen Spray Coolers
Bullard Gas Washer
Decker Cooking Process
Kamyr Feltless Wet Machine
G. D. Jenssen Co.
200 Fifth Ave., New York City



F.W. ROBERTS MFG. CO. INC.
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NIAGARA FALLS ONT.
MANUFACTURERS OF
PAPER & PULP MILL SPECIALTIES

paper mills in this country and the relatively high prices prevailing at primary sources in Europe in contrast with market levels here, imports of papermaking materials, rags particularly, are showing a more or less steady decline. There was a considerable falling off in receipts during September, judging from unofficial figures of arrivals through the port of New York in that month. During the first seven months of this year imports of papermaking rags amounted to 220,233,105 pounds, according to U. S. Department of Commerce statistics, against 289,651,794 pounds imported in the similar time last year, while imports of waste bagging and waste paper in the same period were 51,602,599 pounds, compared with 72,035,967 pounds last year, and of old rope and other paper stock 38,563,270 pounds, contrasted with 53,884,692 pounds a year ago.

Imports of all kinds of paper stock other than wood pulp at New York in September, 1927, these data being taken from manifests of steamers reaching that port during the month, follow:

Old Rope—William Steck & Co., 92 bls.; Brown Bros. & Co., 549 bls. and 1,126 coils; National City Bank, 291 bls.; Ellerman's Wilson Line, 274 coils; Union National Bank of Philadelphia, 79 coils; W. Schall & Co., 67 bls.; American Express Co., 156 coils; Anglo-South American Trust Co., 36 bls.; S. Birkenstein & Sons, 28 coils; American Rag Trading Co., 34 bls.; New York Trust Co., 49 bls.; British Bank of South America, 76 bls.; W. D. Long, 7 bls.; Robert Blank, 58 rolls; R. M. Gray, Inc., 4 bls.; George W. Millar & Co., 89 coils; Ancram Paper Mills, 37 coils; E. J. Keller Co., 94 bls.; International Purchasing Co., 31 bls.; Order, 83 coils, 119 rolls and 2 bls.

Old Bagging—S. Birkenstein & Sons, 63 bls.; Harmon G. Lichtenstein, 128 bls.; Castle & Overton, 213 bls.; Union National Bank of Philadelphia, 84 bls.; Bank of New York & Trust Co., 159 bls.; British Bank of South America, 99 bls.; Equitable Trust Co., 62 bls.; Darmstadt, Scott & Courtney, 68 bls.; A. W. Fenton, Inc., 9 bls.; National City Bank, 42 bls.; George M. Graves Co., 100 bls.; E. J. Keller Co., 440 bls.; Order, 160 bls.

Rags—E. A. Stone Co., 23 bls.; Victor Galaup, Inc., 234 bls.; Bulkley, Dunton & Co., 201 bls.; E. Mayer, 293 bls.; Castle & Overton, 263 bls.; S. Birkenstein & Sons, 76 bls.; Paul Berlowitz, 63 bls.; William Steck & Co., 66 bls.; Darmstadt, Scott & Courtney, 16 bls.; J. Cohen & Sons, 37 bls.; Salomon Bros. & Co., 20 bls.; E. Butterworth & Co., 52 bls.; J. T. Lodge, 22 bls.; A. C. Fetterolf, 32 bls.; Alexander H. Searle, Inc., 41 bls.; Jaffe Products Co., 9 bls.; E. J. Keller Co., 900 bls.; British Bank of South America, 8 bls.; Chase National Bank, 1,732 bls.; Equitable Trust Co., 560 bls.; American Exchange Irving Trust Co., 84 bls.; Chemical National Bank, 17 bls.; Central National Bank, Cleveland, 9 bls.; Banca Commercial Italiana Trust Co., 488 bls.; National City Bank, 238 bls.; Anglo-South American Trust Co., 68 bls.; Philadelphia Girard National Bank, 150 bls.; Atlantic National Bank of Boston, 27 bls.; Fidelity Trust Co., 342 bls.; Corn Exchange Bank, 2 bls.; Certain-teed Products Corp., 123 bls.; Barrett Co., 316 bls.; Van Oppen & Co., 9 bls. Brown Bros. & Co., 70 bls.; A. W. Fenton, Inc., 452 bls.; American Oversea Co., 10 bls.; American Express Co., 32 bls.; Order, 1,962 bls.

Miscellaneous Paper Stock—Castle & Overton, 481 bls.; G. P. Lotterhand, 4 bls.; Chase National Bank, 908 bls.; E. Butterworth & Co., 586 bls.; Daniel M. Hicks, Inc., 128 bls.; J. Cohen & Sons, 42 bls.; Bank of the Manhattan Co., 106 bls.; Whaling Waste Products Co., 92 bls.; Darmstadt, Scott & Courtney, 237 bls.; Van Oppen & Co., 43 bls.; Bulkley, Dunton & Co., 759 bls.; International Mercantile Marine Co., 82 bls.; Gallagher & Ascher, 51 bls.; Brown Bros. & Co., 12 bls.; Kidder Peabody Acceptance Corp., 382 bls.; Equitable Trust Co., 214 bls.; Milton Snedeker Corp., 149 bls.; E. J. Keller Co., 798 bls.; Amsince, Sonne & Co., 7 bls.; Banca Commerciale Italiana Trust Co., 129 bls.; A. W. Fenton, Inc., 166 bls.; Order, 1,278 bls.

Paper

Imports of paper into the United States in July last showed a decline from the month preceding but an increase over the importations in July last year, according to official statistics issued by the Department of Commerce in Washington. July imports reached a total value of $12,071,968, compared with $13,095,875 in June of this year, and $11,556,097 in July of last year. Importations of paper of all kinds into the U. S. during the first seven months of the current year were valued at $83,674,941, showing an appreciable increase over imports valued at $78,703,232 in the corresponding period of 1926.

Paper imports in September were fairly large, judging from receipts at the port of New York. Fair-sized consignments of printing and wrapping paper were received, and usual amounts of cigarette, filter, hanging and other classes of paper were imported. Imports of paper of all kinds through the port of New York in September, these data being taken from manifests of steamers arriving at that port during the month, follow:

Printing—Perkins-Goodwin Co., 47 cs. from Rotterdam, 71 cs. Glasgow, 452 rolls Bremen and 326 cs, 71 reels and 28 bls. Hamburg; B. F. Drakenfeld & Co., 97 cs. from Liverpool; Sinclair & Valentine, 5 cs. from Hamburg; C. B. Richard & Co., 94 bls. from Hamburg; E. Dietzgen & Co., 158 cs. from Hamburg and 89 cs. Rotterdam; Keuffel & Esser Co., 142 rolls from Hamburg; New Haven Times Co., 220 reels and 17 bls. from Gothenburg; P. C.

MITTS & MERRILL

The Mitts & Merrill Shredder will reduce magazines, books, old papers and boxboard, frozen or dried pulp laps, roll and sheet stock in a thoroughly economical manner.

Built in sizes with spouts ranging from 18 to 45 inches wide.

We also build a 100% efficient "Hog" to reduce pulp mill bark and wood refuse.

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1013 Tilden St.
Saginaw, Mich.

Fed by GRAVITY

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See Pages 372 and 373 in the Paper and Pulp Mill Catalog

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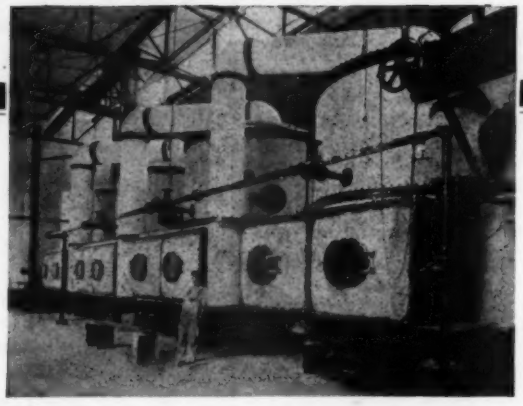

The largest quadruple effect evaporator for handling neutral sulphite waste liquor—

That is . . . . to our knowledge. Installed in 1917 it has given satisfactory service and caused no worry to its owner. Our apparatus can be installed with any designed margin of increased capacity—not only that, but the policy of Zaremba Engineers—to design each installation to meet specific conditions—has been responsible for its success.

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Longcrimp Fourdrinier Wires

USED EXTENSIVELY ON
Kraft, Wrapping and Newsprint Machines

Give Longer Average Service than the Regular Weave

Made By

The Lindsay Wire Weaving Company
(Collinwood Station) CLEVELAND, OHIO

See page 362 in the 1927 Paper and Pulp Mill Catalogue

Zuhlke, 76cs. from Antwerp; Perry, Ryer & Co., 125 cs. from Glasgow; M. Gottesman & Co., 168 reels from Gothenburg; Watch Tower Bible & Tract Society, 70 reels from Bremen; Martin & Bechtold, 27 cs. from Bremen; Davies, Turner & Co., 5 cs. from Antwerp; F. Henjes, Jr., 124 reels from Hamburg; Steiner Paper Corp., 24 cs. from Rotterdam; Journal of Commerce, 207 reels from Bremen; A. S. Zabriskie, 159 reels from Bremen; Heemsoth, Basse & Co., 126 cs. from Hamburg and 63 pkgs. Rotterdam; Bank of Montreal, 11,459 rolls from Corner Brook; Box Board and Lining Co., 118 reels from Bremen; Staats-Herold Co., 20 reels from Gothenburg; Hudson Trading Co., 206 reels from Gothenburg; Walker Goulard Plehn Co., 71 cs. from Bremen and 405 bls. Hamburg; Parsons & Whittemore, 242 rolls from Hamburg; Order, 1,051 bls. from Hamburg, 1,700 reels and 697 bls. Bremen, and 33 cs. Stockholm.

Wrapping—Arkell Safety Bag Co., 370 reels from Gothenburg; Borregaard Co., 1,373 reels and 339 bls. from Gothenburg; Crepe-Kraft Co., 109 rolls from Gothenburg; Blauvelt-Wiley Paper Mfg. Co., 46 bls. from Glasgow and 435 reels Gothenburg; Birn & Wachenheim, 92 cs. from Antwerp; Commonwealth Bank, 19 cs. from Hamburg; Insight Paper Co., 186 rolls from Oslo; Wilkinson Bros. & Co., 53 bls. from Oslo; Manhattan Paper Co., 108 bls. and 24 rolls from Gothenburg; D. S. Walton & Co., 115 rolls and 24 bls. from Hamburg; F. C. Strype, 19 cs. from Antwerp; Robert Wilson Paper Corp., 186 reels from Antwerp and 2 cs. Havre; Chemical National Bank, 34 rolls from Gothenburg; Goldsmith & Co., 177 bls. from Gothenburg; C. K. MacAlpine & Co., 33 bls. and 35 reels from Gothenburg; Messinger Paper Co., 1,406 reels and 109 bls. from Gothenburg; C. Steiner, 28 cs. from Hamburg; Holland-American Line, 1,000 bls. from Antwerp; M. M. Cohen, 25 bls. from Gothenburg.

Cigarette—Standard Products Corp., 751 cs. from Havre; Phoenix Shipping Co., 84 cs. from Hamburg; Surbrug Co., 10 cs. from Havre; M. Spiegel & Son, 12 bls. from Genoa; P. J. Schweitzer, Inc., 208 cs. from Marseilles; American Tobacco Co., 800 cs. from Bordeaux; R. J. Reynolds Tobacco Co., 880 cs. from St. Nazaire; DeManduit Paper Corp., 592 cs. from St. Nazaire and 88 cs. Havre; Stern Co., 2 cs. from Havre; P. Lorliard Co., 50 cs. from Marseilles; British-American Tobacco Co., 12 cs. from Havre.

Writing—Keuffel & Esser Co., 3 cs. from Southampton; Guibont Freres & Co., 18 cs. from Havre; American Express Co., 5 cs. from Havre; T. D. Downing & Co., 2 cs. from Havre; Distinctive Writing Paper Co., 9 cs. from Havre.

Filter—H. Reeve Angel & Co., 36 cs. from Southampton and 28 cs. London; A. Giese & Son, 20 bls. from Southampton; E. Fougera & Co., 112 cs. from Southampton; J. Manheimer, 43 bls. from Southampton; C. Sleicher & Scholl Co., 17 cs. from Hamburg; Order, 21 bls. from Bordeaux and 14 cs. Southampton.

Drawing—Favor, Ruhl & Co., 3 cs. from London; Keuffel & Esser Co., 129 rolls and 40 cs. from Hamburg; H. Reeve Angel & Co., 2 cs. from Southampton and 8 cs. London; New York Blue Print Paper Co., 8 cs. from Cristobal.

Tissue—F. B. Vandegrift & Co., 15 cs. from Liverpool; Steiner Paper Co., 4 cs. from Kobe.

Hanging—A. C. Dodman Jr. & Co., 12 bls. from Liverpool, 4 bls. Southampton, 2 cs. Havre and 5 cs. Antwerp; W. H. S. Lloyd & Co., 21 pkgs. from Liverpool, 23 bls. and 27 cs. Southampton and 2 cs. Havre; C. A. Haynes & Co., 50 bls. from London and 20 bls. Southampton; F. J. Emmerich & Co., 4 bls. from London, 5 bls. Hamburg and 3 bls. Havre; R. Miller, 3 cs. from London; F. Blank & Co., 46 cs. from Hamburg; J. E. Bernard & Co., 6 bls. from Antwerp and 16 cs. Southampton; American Shipping Co., 8 bls. from Liverpool; Pennsylvania Railroad Co., 9 cs. from Havre.

Photo—J. J. Gavin & Co., 6 cs. from Liverpool; Gevaert Co. of America, 271 cs. from Antwerp; Globe Shipping Co., 397 cs. from Bremen; P. C. Zuhlke, 340 cs. from Antwerp; American Express Co., 96 cs. from Antwerp; J. H. Schroeder Banking Corp., 3 cs. from Bremen; Order, 37 cs. from Bremen.

Board—F. B. Vandegrift & Co., 7 cs. from London; Fibre Case & Novelty Co., 87 bls. from Gothenburg; C. K. MacAlpine & Co., 2 bls. from Gothenburg; Adrian Vuyck, 988 reels from Rotterdam; Perkins-Goodwin Co., 281 rolls from Rotterdam; Spaulding & Tewsbury, 399 reels from Rotterdam; Haas Bros., 886 reels from Rotterdam and 212 bls. Hamburg; C. Spaulding, 196 reels from Rotterdam; State Bank, 241 reels from Rotterdam; Wilmington Fibre Co., 3 cs. from Buenos Aires; Lagerloef Trading Co., 496 bls. and 59 reels from Helsingfors and 226 bls. Hamburg; Acme Novelty Co., 7 cs. from Antwerp; Brooks Paper Co., 8cs. from Liverpool; O. M. Baxter, Inc., 34 cs. from Gothenburg; G. M. Thurnauer Co., 12 cs. from Antwerp; Coty, Inc., 46 cs. from Havre; Order, 4 rolls from Rotterdam and 19 bls. Hamburg.

Miscellaneous—Milton Snedeker Corp., 18 cs. from Hamburg; F. C. Strype, 43 cs. from Hamburg and 41 cs. Rotterdam; D. C. Andrews & Co., 206 cs. from Hamburg and 5 cs. Southampton; Manufacturers Trust Co., 26 cs. from Hamburg; M. Harrison Co., 61 cs. from Hamburg; Japan Paper Co., 9 bls. from Gothenburg, 100 cs. Havre, 25 cs. Rotterdam, 10 cs. Marseilles and 17 cs. Southampton; Daiber Co., 5 cs. from Antwerp; F. L. Kraemer & Co., 6 cs. from Southampton; Tice & Lynch, 2 cs. from Southampton and 3 cs. Havre; P. H. Petry & Co., 34 cs. from Rotterdam and 12 cs. Havre; J. Reckhardt & Co., 71 cs. from Rotterdam; S. Gilbert, 55 cs. from Rotterdam; H. D. Catty & Co., 4 cs. from Rotterdam and 3 cs. Antwerp; Globe Shipping Co., 8 cs. from Rotterdam; Whiting-Patterson Co., 15 cs. from Southampton, 14 cs. Hamburg and 33 cs. London; Cunard Steamship Co., 2 cs. from Southampton; Hensel, Bruckman & Lorbacher, 14 cs. from Havre and 37 cs. Bremen; Richard Shipping Corp., 5 cs. from Bremen; R. F. Downing & Co., 51 cs. from Havre; Kolesch & Co., 9 cs. from Rotterdam; Haas Bros., 15 cs. from Rotterdam; Horman, Schutte & Co., 26 cs. from Genoa; Houbigant, Inc., 9 cs. from Havre; Keller-Dorian Paper Co., 62 cs. from Havre; Pitt & Scott, 2 pkgs. from Havre; Danley & Co., 3 pkgs. from Havre; Whitfield Paper Works, 33 cs. from Kobe; Independent Forwarding Co., 207 bls. from Hamburg; Bendix Paper Co., 14 cs. from Hamburg; International Forwarding Co., 18 cs. from Hamburg; Happel & McAvoy, 3 cs. from Rotterdam; Freedman & Slater, 2 cs. from Hamburg; G. W. Sheldon & Co., 2 cs. from Southampton; Burroughs, Welcome & Co., 12 cs. from Southampton; Coenca-Morrison Co., 11 cs. from Havre; M. J. Corbett & Co., 2 cs. from Bremen; F. Murray Hill, Inc., 5 cs. from Bremen; Meadows, Wye & Co., 15 cs. from Rotterdam; Atlantic Forwarding Co., 14 cs.

NOTICE! To All Mill Executives

Nielsen Surveys Now Available

Several very comprehensive surveys covering Dayton High Speed Beater performance have just been prepared by the A. C. Nielsen Company, Chicago. These surveys contrast operating conditions before and since the installation of Daytons and contain close figures, and percentages on every phase of high speed performance.

They should be especially interesting because they contain no data prepared by ourselves—every iota of material having been compiled independently by impartial Nielsen experts working in conjunction with mill executives.

You are bound to be interested in data obtained in this impartial and highly exhaustive manner—and since it was assembled for your study we urge you to write us regarding it.

The Dayton Beater & Hoist Company
Dayton, Ohio

Eastern Representatives: E. K. Mansfield & Co.
501 5th Ave., New York, N. Y.

DAYTON
High Speed Beaters

THE DRAPER FELT

Unexcelled for strength, openness, resiliency, and general running qualities. Made to meet the most exacting conditions on all types of machines and all kinds of papers. Only one grade and that the highest.

Made by

DRAPER BROTHERS COMPANY

CANTON, MASS.

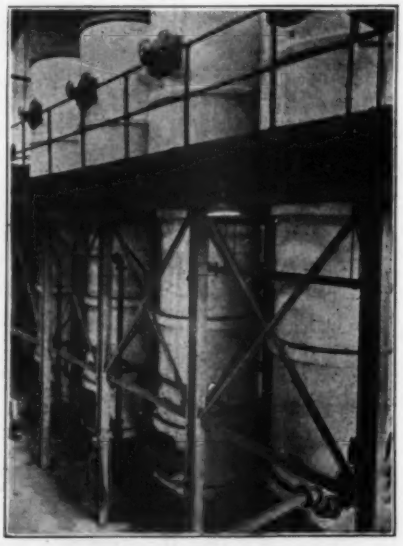
Woolen Manufacturers Since 1856

REPRESENTATIVES

L. H. BREYFOGLE, Kalamazoo, Mich. INTERNATIONAL TRADING CO., Philadelphia, Pa.

IMPROVED BADGER BLACK LIQUOR EVAPORATORS

Recent Installation
NORTHWEST
PAPER CO.
Cloquet, Minn.



NON-FOAMING

MAXIMUM
STEAM ECONOMY

NO ENTRAINMENT

SODA and
SULPHATE
PROCESSES

E. B. BADGER & SONS CO., Boston, U. S. A.

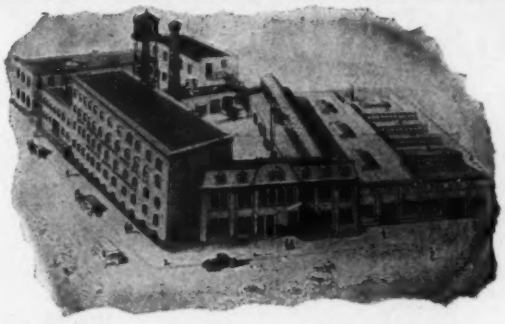
See page 314 in the 1926 Paper and Pulp Mill Catalogue

from Hamburg; Steiner Paper Corp., 2 cs. from Kobe; E. M. Sergeant Co., 6 cs. from Gothenburg; E. V. Hadley, 18 cs. from Hamburg and 10 pkgs. Antwerp; Walker Goulard Plehn Co., 22 bls. from Hamburg; L. Greenberg & Co., 8 cs. from Hamburg; National Bank of Commerce, 10 cs. from Hamburg; P. Puttmann, 10 cs. from Antwerp; Titan Shipping Co., 9 cs. from Havre; Canson & Montgolfer, 25 cs. from Havre; Stern Bros. & Co., 12 cs. from Havre.

Market Quotations

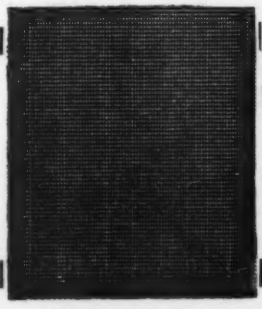
(*Continued from page 1231*)

Parker Young Co. 6½s, 1944	97	99
Patterson Parchment Paper 6s, 1938	101	102
Penobscot Chemical Fibre Co. 6s, 1942	102½	
Port Alfred Pulp & Paper Co. 6s, 1942	101½	102½
Price Bros. 6s, 1943	102½	
Provincial Paper Co. 6s, 1941	101½	
Queen City Paper Co. 7s, 1933	97½	100
Richardson Co. 6s, 1938	100	
Riordan Pulp & Paper Co. 6s, 1931	100½	102½
Riordan Pulp & Paper Co. 6s, 1942	100	101½
River Raisen Paper Co. 6s, 1936	98½	
Roland Paper Co. 6s, 1937	99	
St. Anne Paper Co. 6½s, 1946	98	
St. Regis Paper Co. 6s, 1931	100	101
St. Lawrence Paper Mills 6s, 1946	97	99
Stevens & Thompson Paper 6s, 1942	93	94
Sauquoit Paper 6½s, 1938	95	97
Taggart Bros. 6s, 1944	95	100
Tait Paper & Color Industries 6s, 1934	90	92
Ticonderoga Pulp & Paper 6s, 1940	99	
Tomahawk Craft Paper Co. 7s, 1928	95	98
Tonawanda Paper Co. 5½s	100½	
Warren (S. D.) Co. 6s, 1945	102	104
Watab Paper Co. 6½s, 1942	102	103
Wayagamack Paper & Pulp 6s, 1951	99	
Western Quebec Paper 6½s, 1948		75
Whitaker Paper Co. 7s, 1942	107⅛	108
Whitman Parsons Pulp & Lumber Co. 8s Units	50	60
Westfield River Paper Co. 7s	90	93
STOCKS		
Advance Bag & Paper Co. Pfd.	98	
Abitibi Power & Paper Co. Common	120	
American Book Co.	144	148
American Sales Book Co. Common	64	67
American Sales Book Co. Pfd.	102	103
American Tissue Mills Co. Pfd.	90	92
American Writing Paper Co. Ctfs.	18¾	19¼
American Writing Paper Co. old Pfd.	1½	
A. P. W. Pulp & Paper Pfd.	97	97½
Androscoggin Pulp Co. Common	30	
Androscoggin Pulp Co. Pfd.	90	
Burt Co. Common	61	63
Belgo Canadian Paper Co. Pfd.	104	
Brompton Pulp & Paper Co. Common	37	38
Beaverboard Co. Pfd.	38	40
British Columbia Pulp & Paper Pfd.	67	72
Brompton Pulp & Paper Co. 8% Pfd.	98	
Brown Corp. Pfd.	104	
Canadian Bag Co.	180	
Canadian Paperboard Co. Pfd.	85	
Celotex Pfd.	89	
Common 9	76	
Champion Fibre Co. Pfd.	107½	110
Champion Coated Paper Co.		125
Champion Coated Paper Pfd.	111	115
Champion Fibre Co. Common	250	
Crown Willamette Paper Co. Common		10
Chemical Paper Mfg. Co. 1st Pfd.	90	
Chillicothe Paper Co. Pfd.		105
Creamery Package Co. Pfd.	99½	101½
Diem & Wing Pfd.	92	97
Donnacona Paper Co. Common	67	
Donnacona Paper Co. Preferred	100	
Downington Paper Co. 1st Pfd.	101¼	
Dryden Paper Co. Ltd.		14½
Eastern Mfg. Co. Pfd.	27	29
Eddy Paper Co. Common	26	28
Escanaba Paper Co. Pfd.	40	
Fidalgo Pulp Mfg. Co. Common		75
Fidalgo Pulp Mfg. Co. Pfd.		105
Frazier Co. Pfd.	OW	BW
Frost & Wood, Ltd., Pfd.	45	
Gair (Robt.) Common	12	
Globe Folding Box Pfd.	70	
Great Northern Paper Co.	72	74
Hammermill Paper Co. Pfd.	106	110
Hinde & Dauch Pfd.	101	
Holyoke Card & Paper Co. Pfd.	170	
International Pulp Co. Pfd.	60	65
International Paper Co. Pfd.	104	104½
International Paper Co. 6% Pfd.	94½	
Jessup & Moore Paper Co. 1st Pfd.	40	50
Jessup & Moore Paper Co. Common	5	15
Louis DeJonge Paper Co. Pfd.	95	97
Marathon Mills Common	125	
Mengel Co. Pfd.	85	89
Mead Pulp & Paper Co. Pfd.	103	104
Common	62	
Minnesota & Ontario Paper Co. 6% Pfd.	75	80
Munising Paper Co. Pfd.	80	90
Common	20	30
Missisquoi Pulp & Paper Pfd.	95	100
National Paper & Type Pfd.	35	40
Oglesby Paper Co. Pfd.	95	
Oxford Paper Co. Pfd.	107	
Oxford Paper Co. Common	165	



Superior experience

THOROUGH knowledge of the requirements of progressive papermakers has been gained in more than three-quarters of a century's experience in making Superior wires.



Wires and facings for
All Paper and Pulp Mill Purposes

The William Cabble Excelsior Wire Mfg. Co.

74-88 Ainslie St.
143-151-163 Union Ave.
Brooklyn, N. Y.

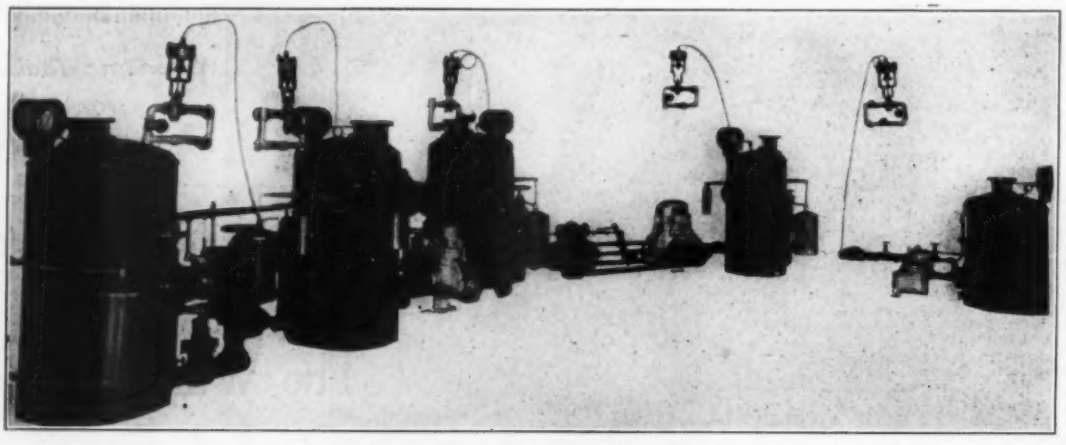
BARRE GRANITE IN PRESS ROLLS

Is Revolutionizing the Whole Paper Making Industry

If your Paper Machines are not equipped with Press Rolls of BARRE GRANITE you are not getting the results that you should get, for it is a recognized fact that granite rolls are much superior to any others and Barre Granite the best of all. Let us tell you about them.

Jones Brothers Company

BARRE, VT. **BOSTON, MASS.**



One Shipment

Increased drying efficiency is being secured in paper mills throughout the country with the improved Fulton dryer drainage System. The picture shows five Fulton Circulators ready for shipment. Your drying can be improved by our practical experienced paper mill engineers.

Better sheet—More production—Lower cost

Fulton Engineering Co., Middletown, Ohio

Occident Pulp & Paper Co. Pfd.		20
Penobscot Chemical & Fibre Co. Common	75	85
Port Alfred Pulp & Paper Co.	97	98
Provincial Paper Co. Pfd.	99	101
Price Bros.	60	
Package Paper & Supply Units	22	
Quebec Pulp & Paper Units	25	30
Richardson Co. Pfd.	105	
Rubberoid Pfd.	69	71
River Raisin Co. Pfd.	7¼	8¼
Robertson Paper Co. Pfd.	6	
Spanish River Pulp & Paper Mills Common	104½	
Pfd.	120	
Scott Paper Co. Pfd.	99	101½
Sefton Mfg. Co.	98	102
Saint Croix Paper Co.	160	
St. Regis Paper Co. Pfd.	102½	103½
United Paperboard Co. Common	22	24
Union Bag & Paper Co.	48½	49½
Wayagamack Paper Co.	73	
Watson (H. F.)	125	
Watervliet Paper Co.	10	
Westfield River Paper Co. Pfd.	OW	BW
Western Paper Good Co. "A"	24	30
West Virginia Pulp & Paper Common	50	52
Whitaker Paper Co. Pfd.	99½	101
Whitaker Paper Co. Common	58	60

Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Department of Commerce in Washington. Those interested should communicate with the Bureau of Foreign and Domestic Commerce, Department of Commerce, at its offices in Washington or New York or its district offices in other cities, giving at all times the numbers of the inquiries referred to.

No. 27236—Glassine paper and transparent, grease-proof paper. London, England. Agency desired.

No. 27257—Wall board, insulating, and building felt. Copenhagen, Denmark. Agency desired.

No. 27234—Rosin. Knobe, Japan. Purchase desired.

No. 27272—Rosin and sulphur. Hamburg, Germany. Purchase desired.

No. 27352—Paper milk bottles in half-pint, pint and quart sizes. Johannesburg, South Africa. Purchase desired.

No. 27329—Soda ash and caustic soda. Trieste, Italy. Agency desired.

Fourteen Times as Much Newsprint

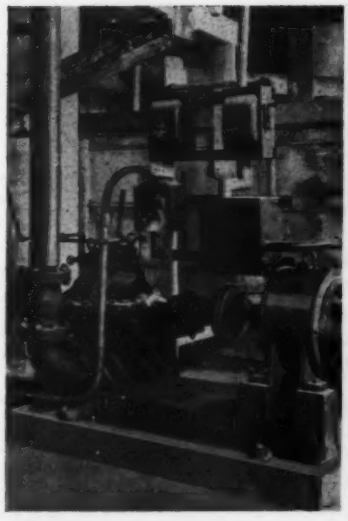
"We use more than fourteen times as much newsprint in the United States today per capita as we did seventy years ago," said R. S. Kellogg, secretary of the News Print Service Bureau, New York, in speaking to the members of the Advertising Club in Lafayette, Ind., October 4th.

"The increase in per capita consumption of most basic commodities has been large, but in newsprint and all grades of paper it has been almost phenomenal. Twice as much coffee, four times as much sugar and seven times as much cotton per capita is a big jump over the quantity of these commodities consumed in our grandfathers' day, but these increases seem almost negligible when we realize that we use fourteen times as much newsprint and over twenty times as much paper of all grades as did our ancestors of less than three-quarters of a century ago. This is an interesting illustration of the ability of mankind to increase the consumption of commodities as their costs decrease."

Robertson Leases Mills from Gerade

Alfred A. Gerade of Melrose Highlands, Mass., purchased the three tissue paper mills at Ashuelot, New Hampshire, of Robertson Co., Hinsdale, N. H., and has re-leased the mills back to the Robertson people to have them operated as heretofore. The Paper Service Co., Inc., manufacturers of toilet paper, towels and sheet tissues, also sold its plant and equipment to Mr. Gerade, who passed the control of this company to the Robertson Co., and it will now be operated as a division of this company.

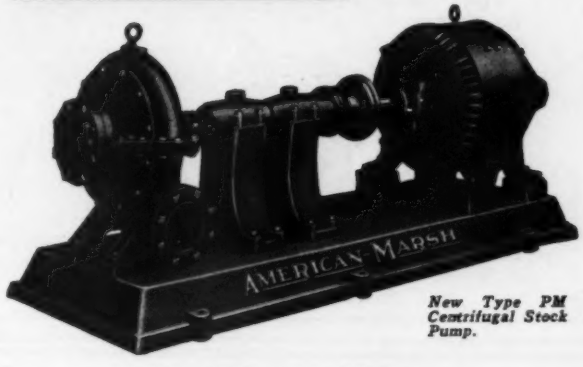
Mr. Gerade has announced that he bought the companies for investment, and the mills would continue to be operated as in the past and improvements necessary to bring the plants up to date and increase the capacity as previously contemplated by Robertson Co., would be carried out.



AMERICAN-MARSH PUMPS

Complete Line—
Steam and Centrifugal
Boiler Feed
Vacuum
Stock Handling
Condensation
Circulating
Booster
General Service

At Left: — American-Marsh Type HM Centrifugal Pump handling white water from paper machine.



New Type PM Centrifugal Stock Pump.

A New One With Improvements

THIS new American-Marsh Centrifugal Pump shown above has been designed for but *one* application—handling stock. It will not clog for it is equipped with a special back plate type open impeller.

Smooth, steady performance is further assured by an extra rugged construction—liberal size bearings and bearing supports—both pump and driver mounted together on one massive base. Built in sizes with capacities up to 1800 gallons per minute for operation with maximum economy when direct motor driven.

The next time you need stock pumps investigate the advantages of this latest American-Marsh development. It will save you many dollars in maintenance cost. Write us.

AMERICAN-MARSH

AMERICAN STEAM PUMP COMPANY
BATTLE CREEK, MICHIGAN
Sales Engineers in All of the Principal Cities

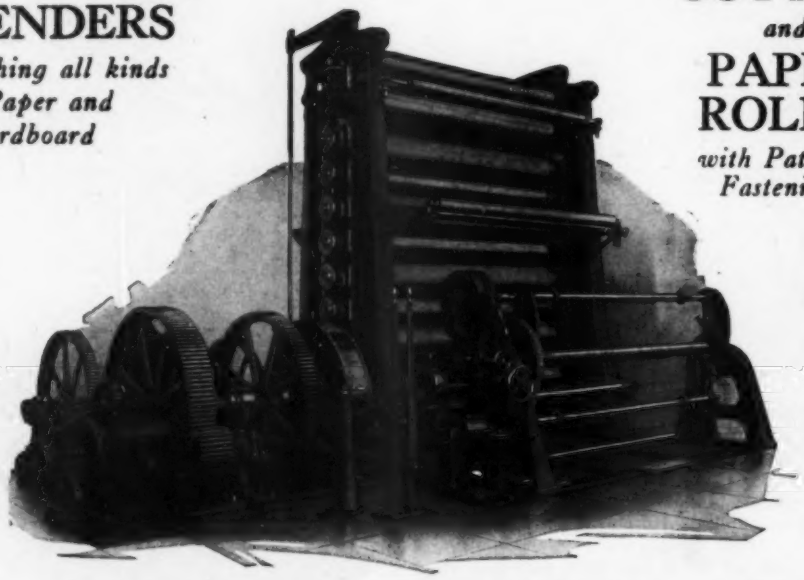
Stock Pumps

Holyoke Machine Co., Holyoke, Mass.

Makers of Improved Machinery for Wood Pulp and Paper Mills

LARGEST MAKERS *of*
CALENDERS
for finishing all kinds of Paper and Cardboard

COTTON *and* **PAPER ROLLS** *with Patented Fastenings*



Platers, Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters

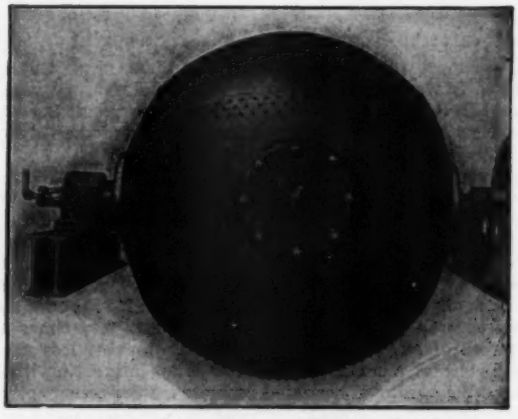
Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors

Reliable Bleaching and Cooking Equipment

Biggs globe and cylinder rotary bleaching boilers—in sizes to suit every purpose and for all necessary pressures—have served the industry faithfully since 1887.

The improved Biggs rotary cold bleaching engine is daily establishing new records for fast, economical bleaching of high density stock.

Naturally our 40 years' experience in heavy steel plate construction enables us to build sulphate and sulphite digestors of the heaviest type. The Biggs Rotary Boiler Book gives full details. Write for your copy today.



The New Biggs Rotary Bleaching Engine (Patents Pending)

THE BIGGS BOILER WORKS COMPANY
General Offices and Works
Seneca Place and Case Avenue, Akron, Ohio
Eastern Sales Office: 300 Madison Avenue, New York City.
Chicago Office: 35 South Dearborn Street.

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GLOBE and CYLINDER
ROTARY BLEACHING BOILERS
for Years of Dependable Cooking and Bleaching